COPY

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Sent via Federal Express

April 10, 2009

Ms. Eleanore Whitworth, Permit Coordinator
Municipal Solid Waste Permits Section
Waste Permits Division
Texas Commission on Environmental Quality
12100 Park 35 Circle, Building F, MC-124
Austin, Texas 78753

Re: City of El Paso / McCombs Landfill – El Paso County
Municipal Solid Waste (MSW) — Permit No. 729A
Permit Modification — Landfill Gas Remediation
Second Technical Notice of Deficiency Response
Tracking No. 12593788, 12541410, 12434930; CN601410244/RN100215599

Dear Ms. Whitworth:

On behalf of the City of El Paso (City), R. W. Beck, Inc. has prepared the following documents as requested in the letter dated March 13, 2009 from the Texas Commission on Environmental Quality (TCEQ) in order to complete the processing of the subject permit modification. The following items are enclosed as requested:

- One original and one unmarked (clean) copy of the revised and added pages of Attachment 14 – Landfill Gas Management Plan throughout the application process for insertion by the TCEQ. Each revised page has a footer that indicates the revision number and date in accordance with 30 TAC §330.57.
- One marked copy (in redline/strikeout format) of the revised and added pages of Attachment 14 – Landfill Gas Management Plan throughout the application process.
- An original signed Applicant Certification Statement from the City of El Paso per 30 TAC §305.44.

In addition, an unmarked copy of the revised and added pages of Attachment 14 throughout the application process has also been mailed to Mr. Kent Waggoner, Waste Section Manager of TCEQ Region 6 in El Paso, Texas as requested.

4975 Preston Park Blvd., Suite 850, Plano, Texas 75093 Phone (972) 372-1200 Fax (972) 372-1201

The following is a summary of revisions or replacement and additional pages made to the site's Part III Site Development Plan Attachment 14 – Landfill Gas Management Plan (LGMP):

- A second cover page of the LGMP has been added to provide a continuous record of modifications made to the LGMP and identify the responsible engineer for the changes.
- A revised table of contents has been added to reflect the changes in this permit modification.
- First page of Section 7 has been updated concerning the placement of gas probes and passive vents.
- A subsection entitled "Gas Monitoring Probes 18 to 22 (AMEC, 2004 – 2006)" under Section 8 – Gas Monitoring Probe Installation has been added to describe the installation of the additional GMPs 18 to 22 in 2004 through 2006.
- A new Section 18 – Gas Migration Control System has been added to describe the proposed active GMCS along the western perimeter of the McCombs Landfill.
- Appendix A-3 has been updated to provide information on coordinates and elevations of GMPs and PVs.
- A new Appendix 14F entitled "Additional Gas Monitoring Probes (GMPs 18 to 22) And Passive Vents Boring Logs and Well Reports" has been added to present the boring and well logs and state well reports of the additional GMPs 18 to 22 and passive vents PV-3 to PV-7.
- A new Appendix 14G entitled "Landfill Gas Migration Control System (GMCS) Along Western Perimeter" has been added to present the drawings of the proposed GMCS. The drawings are:
    1. Figure 14G-1 "Site Plan"
    2. Figure 14G-2 "Layout of Active GMCS"
    3. Figure 14G-3 "Typical GMCS Details"

We appreciate your assistance in this review. Please contact me at 972-372-1205 if you have additional questions.

Sincerely,

R. W. BECK, INC.

Charles W. Leung

Charles Leung, P.E.

Senior Project Manager

Enclosures:

Distribution:

Mr. Kent Waggoner, TCEQ Region 6 Office
Mr. Miguel Parra, P.E., City of El Paso

4975 Preston Park Blvd., Suite 850, Plano, Texas 75093 Phone (972) 372-1200 Fax (972) 372-1201

R·W·BECK

ORIGINAL

McCombs Landfill

El Paso County, Texas

TCEQ MSW Permit No. 729A

PERMIT MODIFICATION

Site Development Plan

Part III – Attachment 14

Landfill Gas Management Plan

APPLICANT'S CERTIFICATION (per 30 TAC §305.44)

I certify under the penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Ellen A. Smyth

Date: 4-8-2009

Ellen A. Smyth, P.E.

Director of Environmental Services

City of El Paso, El Paso County, Texas

PART III SITE DEVELOPMENT PLAN
ATTACHMENT 14 – Landfill Gas Management Plan

REVISED/REPLACEMENT PAGES

(CLEAN COPY)

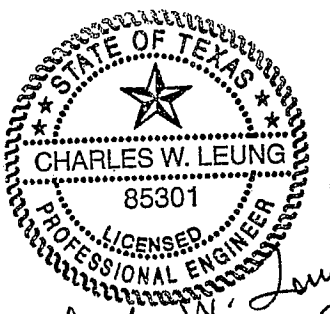
(CONTINUED)

SITE DEVELOPMENT PLAN
PART III – ATTACHMENT 14
LANDFILL GAS MANAGEMENT PLAN

McCombs Landfill
El Paso County, Texas
TCEQ MSW Permit No. 729A

Approved December 14, 2001
Revision 1 Approved November 13, 2003
Revision 2 April 3, 2009

Prepared for:
City of El Paso – Environmental Services
7969 San Paulo Drive
El Paso, Texas 79907



Charles W. Leung
April 3, 2009
(Rev. 2 only)

Prepared by:
R. W. Beck
4975 Preston Park Blvd., Suite 850
Plano, Texas 75093

Project No. 15-00297-01000

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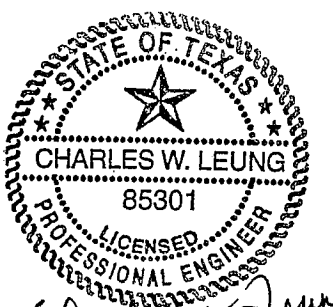


Charles W. Leung
April 3, 2009
(Rev. 2 only)

TABLE OF CONTENTS (CONTINUED)

LIST OF APPENDICES

STATE OF TEXAS
CHARLES W. LEUNG
85301
LICENSED
PROFESSIONAL ENGINEER

Charles W. Leung
April 3, 2009
(Rev. 2 only)

7 BASIS OF PROBE AND VENT PLACEMENT

In June 2000, two passive venting wells (PV-1 and PV-2) were installed in order to intercept and vent methane gas prior to reaching GMP-2 and GMP-3. One (1) venting well was installed approximately fifty (50) feet east of GMP-2, with the other venting well installed approximately fifty (50) feet south and thirty (30) feet east of GMP-3. Both venting wells were installed to a depth approximately sixty (60) feet bgs in order to capture methane gas at depths where the majority of the elevated methane gas levels were detected and may be generated.

In 2001, one vertical passive venting well (PV-3) was installed to a depth of 55-feet below grade. The venting well was located approximately 10 feet south of GMP-4. Construction details for the Passive Venting Wells are included in Appendix D-1. The locations of the passive venting wells are shown in Appendix A-2.

Five (5) additional passive venting wells (PV-3 to PV-7) were installed in 2006 to provide additional gas venting in the area between GMP 2 and GMP 3. PV-3 was a replacement vent of the one installed in 2001. GMP 18 and GMP 19 were installed in 2004 to eventually replace GMP 2, and GMP 3, respectively. GMP 2 and GMP 3 will be decommissioned, plugged and abandoned after their gas readings have returned to compliance due to the installation and operation of the proposed active Gas Migration Control System (GMCS) along a portion of the western perimeter as part of the gas migration remediation plan. The current locations of GMPs 2 and 3 are too close to the waste limits, and the locations of GMPs 18 and 19 are more suitable for gas monitoring at these two locations.

Temporary GMPs 20, 21 and 22 were installed in 2006 to provide additional information on gas migration. These probes will also be decommissioned, plugged and abandoned after the gas readings of the impacted probes in the affected area have returned to compliance. The City has also decommissioned, plugged and abandoned GMPs 4, 5 and 6 based on previous TCEQ approval.

The locations of the GMPs and passive venting wells are shown in Figure 14G-1, and the approximately coordinates and elevations are shown in Appendix A-3.

The permanent Site Methane Monitoring Network consists of fourteen (14) GMPs spaced approximately 1,000 feet apart. The GMPs were installed along the permitted area and property boundary. A review of on-site geological/soil data revealed little evidence of any laterally extensive stratographic units which could significantly influence migration of any gases produced within the landfill cells (AGRA, 1994). The locations of the GMPs are shown in Appendix A-2. Except for GMP-7 (10 feet deep), the GMPs depths are 55 feet. The depth of each GMP was based on the following information:

Closed Cell Area:

According to information provided by the City, the southeastern quadrant of the landfill was used for disposal of municipal solid waste in the early 1960's. Information available suggests that little excavating was performed; waste was placed on the surface of the ground and covered (Borrego, 1994). AGRA Earth and Environmental Group estimated that the depth of waste in this area extends less than 5 feet below the surrounding land surface. The top of this cell is approximately 15 feet above grade (AGRA, 1994). The cell is covered with silty sand.

Phase II Area:

Excavations southwest of the potential area extended to a depth of 65 feet below the surface (Borrego, 2000).

8 GAS MONITORING PROBE INSTALLATION (Continued)

Gas Monitoring Probes 18 to 22 (AMEC, 2004 - 2006)

The gas monitoring probes were installed by a licensed monitor well driller (Mr. John McDuffee License No. 2994W) employing a CME 75 truck mounted drill rig equipped with 10-inch O.D. hollow stem augers. All drilling and probe operations were performed under the direction of an AMEC Texas-registered professional geologist. During the placement of the probes, the soil encountered was continuously examined, visually classified and logged. The boring and well logs of the GMPs 18 to 22 are presented in Appendix F. Locations of GMPs 18 to 22 are shown in Appendix G.

GMP 18 and GMP 19 were installed in 2004 to eventually replace GMP 2, and GMP 3A, respectively. GMP 2 and GMP 3A will be decommissioned, plugged and abandoned after their gas readings have returned to compliance due to the installation and operation of the proposed active Gas Migration Control System (GMCS) along a portion of the western perimeter as part of the gas migration remediation plan. The current locations of GMPs 2 and 3A are too close to the waste limits, and the locations of GMPs 18 and 19 are more suitable for gas monitoring at these two locations. The original GMP 3 was damaged and was replaced by GMP 3A in 2003.

Temporary GMPs 20, 21 and 22 were installed in 2006 to provide additional information on gas migration. These probes will also be decommissioned, plugged and abandoned after the gas readings of the impacted probes in the affected area have returned to compliance. The City has also decommissioned, plugged and abandoned GMPs 4, 5 and 6 based on previous TCEQ approval.

18 GAS MIGRATION CONTROL SYSTEM ALONG WESTERN PERIMETER

Existing gas monitoring probes (GMPs) 2, 3, 20, and 21 along the western perimeter of the McCombs Landfill have been experiencing periodic elevated methane readings above the regulatory limit of 5 percent (%) for some time. Certain investigations and field work had been performed by consulting firms in the past on LFG migration at the landfill, and the landfill is currently under enforcement actions by TCEQ to mitigate the affected GMPs due to elevated methane readings.

Additional passive vents (PV-3 to PV-7) were installed along the western waste limit of the Landfill in 2006 by AMEC (a local consulting firm) as part of the on-going remediation efforts. The boring and well completion logs and state well reports are provided in Appendix F. The locations of PV-3 to PV-7 are presented in Figure 14G-1. However, the passive vents were not effective in controlling gas migration toward the affected GMPs. As a result, the City decided to install an active gas migration control system (GMCS) as part of the site gas remediation plan.

The proposed GMCS is an active extraction system to control LFG migration in the affected area. The system is a partial active system because it will be installed only along a distance of approximately 1,000 to 1,500 feet over the western portion of McCombs Landfill (Phases I – III) to remediate LFG migration in the affected area. Existing passive vents PV-2 to PV-7 will be converted into active gas extraction wells as part of the GMCS. In addition to the 6 converted extraction wells, the GMCS will consist of LFG header and lateral pipes, a condensate sump and pump system, a blower/flare (b/f) station, a condensate storage tank and an air compressor system to power the condensate pump system. Future new gas extraction wells may be installed if the gas readings of the affected GMPs are not under the compliance level after 6 months of operating the GMCS with the converted passive vents. See Figures 14G-1 and 14G-2 for the approximate location and layout of the proposed GMCS. Typical details of the passive vents conversion and potential new gas extraction wells are presented in Figure 14G-3.

The Landfill site is currently under the annual air emissions threshold of the Federal New Source Performance Standards (NSPS). As a result, there is no present requirement for the City to install a LFG collection and control system (GCCS) covering the entire landfill under the NSPS rules, unless there are changes in the anticipated waste acceptance rates and/or site specific non-methane organic compounds (NMOC) concentrations in the future that may increase air emissions.

APPENDIX A-3

HORIZONTAL LOCATIONS AND ELEVATIONS TABLE
FOR GAS MONITORING PROBES AND PASSIVE VENTING WELLS

Reference Point	North	South	Elevation
GMP-1	10675.08	10110.84	4086.41
GMP-2	11883.99	10084.55	4088.11
GMP-3A (replaced original GMP-3)	12885.06	10080.40	4096.68
GMP-4 (decommissioned)			
GMP-5 (decommissioned)			
GMP-6 (decommissioned)			
GMP-7	11051.54	12140.06	4072.61
GMP-8	10665.08	11084.89	4072.38
GMP-9	10680.16	13140.49	4078.55
GMP-10	11681.36	13252.38	4084.32
GMP-11	12680.13	13235.89	4087.33
GMP-12	13679.19	13217.35	4082.85
GMP-13	14680.49	13199.921	4082.21
GMP-14	14964.03	12243.49	4075.69
GMP-15	14961.44	12244.89	4067.69
GMP-16	14953.59	10166.20	4048.13
GMP-17	13973.30	10070.10	4056.37
*GMP-18***	*10738875.87*	*413522.86*	
*GMP-19***	*10739860.13*	*413550.26*	
*GMP-20***	*10739538.43*	*413615.12*	
*GMP-21***	*10739225.81*	*413595.36*	
*GMP-22***	*10739398.67*	*413545.64*	
PV-1	11870.84	10134.05	4092.70
PV-2	12803.58	10116.34	4101.28
PV-3	12835.90	10960.34	4081.81

RR Spike (Benchmark)*	10000.00	10000.00	4080.16
FND CM @ Back Bldg. (Benchmark)	10609.25	11047.33	4072.11
*PV-4***	*10739557.07*	*413732.35*	
*PV-5***	*10739372.37*	*413721.45*	
*PV-6***	*10739168.26*	*413775.74*	
*PV-7***	*10739168.26*	*413775.74*	

*** Approximately locations only, coordinates and elevations not surveyed.*

* The RR Spike Benchmark was designated as the reference point for the survey. This benchmark is located at the common corner of Section 1 and Section 12, Block 81, Township 1, and Sections 6 and 7, Block 80 Township 1, Texas and Pacific Railway Surveys.

PART III SITE DEVELOPMENT PLAN
ATTACHMENT 14 – LGMP

APPENDIX 14-F

ADDITIONAL GAS MONITORING PROBES (GMPs 18 TO 22) AND PASSIVE VENTS BORING LOGS AND WELL REPORTS

(Added April 3, 2009)

June 29, 2007
AMEC Project Ref. 6717500029

City of El Paso Environmental Services
Environmental Management
7969 San Paulo Dr.
El Paso, Texas 79907

Attention: Mr. John D. Garza, P.E
Mr. Said Larbi-Cherif, P.E.

Re: Transmittal of Completion Documents
McCombs Municipal Solid Waste Landfill
El Paso, Texas
MSW Permit No. 729A
WWC No. 11004302

Gentlemen:

Transmitted herewith are borings logs, well completion as-built diagrams and State well records for gas monitoring probes (GMPs), passive vents (PVs), and test monitoring points (MPs) placed at the McCombs MSW landfill during the last few phases of work. Some of these documents were previously submitted in other correspondence; however, we have provided all applicable documentation to ensure the completeness of your records.

These as-built diagrams and supporting information will be incorporated into a permit modification documenting changes to the landfill gas monitoring and abatement system at the time a formal submittal to the State is deemed appropriate.

We have omitted details concerning passive vent modification (turbines/solar vents) to minimize confusion associated with various configurations that have or may be employed.

Should you have any questions or concerns associated with these documents, please feel free to contact us at your convenience.

Respectfully submitted,
AMEC Earth & Environmental, Inc.

DAVID A. VARELA 90556 LICENSED PROFESSIONAL ENGINEER 6/29/07

David Varela, P.E.
Senior Engineer

David Hartsfield, P.G.
Senior Geologist

Jamie Barnes
Unit Manager

Copies: Addressee (3)

Permit No. 729A, Revision 1, Jan. 9, 2006

LOG OF TEST BORING NO. GMP-18

PROJECT McCombs Landfill Gas Study
JOB NO. 4-717-000291 DATE December 15, 2004

SHEET 1 OF 2
RIG TYPE CME 75
BORING TYPE 10" O.D. Hollow Stem Auger
SURFACE ELEV.
DATUM Existing

LOGGED BY W. Smith
DWG BY C. Holguin
CHEK'D BY D. Varela
DRILLED BY E. Osorio

File No. [illegible]

Depth in meters	Sample Number	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	PID Reading @ Sample Tube	% LEL	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			X	A		0.0	0.0	SM		SILTY SAND, nonplastic, brown, dry.
								SM		SILTY SAND, low to moderate calcium carbonate induration, nonplastic, white brown.
5			X	A		0.0	0.0			
								SP		SAND, fine to medium grained, nonplastic, light brown, dry.
10			X	A		0.0	0.0			
								SP		SAND with some gravel, low calcium carbonate induration, nonplastic, dry. Gravel 1/4" to 1" sub-angular, sub-rounded.
15			X	A		0.0	0.0			
								SP		GRAVELLY SAND; nonplastic, light brown, dry. Gravel 1/4" to 1" sub-angular, sub-rounded.
20			X	A		0.0	0.0			
								SP		SAND with some gravel, medium to coarse grained, nonplastic, light brown, damp. Gravel 1/4" to 1", 5-10% gravel, sub-angular, sub-rounded.
25			X	A		0.0	0.0			
30			X	A		0.0	0.0			
35			X	A		0.0	0.0			
40										

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED PROFESSIONAL GEOSCIENTIST

P.G.
6-28-07

GROUND WATER		
DEPTH	HOUR	DATE

SAMPLE TYPE
A – Auger cuttings
S – 2" O.D. 1.38" I.D. tube sample
U – 3" O.D. 2.42" I.D. tube sample
T – 3" O.D. thin-walled Shelby tube
B – Block sample
M – Macrocore

Permit No. 729A, Revision 1, Jan. 9, 2006

LOG OF TEST BORING NO. GMP-18

amec

PROJECT McCombs Landfill Gas Study
JOB NO. 4-717-000291 DATE December 15, 2004 SHEET 2 OF 2

RIG TYPE CME 75
BORING TYPE 10" O.D. Hollow Stem Auger
SURFACE ELEV.
DATUM Existing

LOGGED BY W. Smith
DWG BY C. Holguin
CHEK'D BY D. Varela
DRILLED BY E. Osorio

File No. [illegible]

Depth in meters	Sample Number	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	PID Reading @ Sample Tube	% LEL	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
40			X	A		0.0	0.0	SP		SAND with some gravel, medium to coarse grained, nonplastic, light brown, damp. Gravel 1/4" to 1", 5-10% gravel, sub-angular, sub-rounded.
45			X	A		0.0	0.0			
50			X	A		0.0	0.0	SP		SAND, fine to coarse grained, nonplastic, light brown, damp. Less than 5% gravel content.
55			X	A		0.0	0.0			
60			X	A		0.0	10			
65			X	A		0.0	8			
70										Auger Stopped at 67'.
75										
80										

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED PROFESSIONAL GEOSCIENTIST

P.G.
6-28-07

GROUND WATER		
DEPTH	HOUR	DATE

SAMPLE TYPE
A – Auger cuttings
S – 2" O.D. 1.38" I.D. tube sample
U – 3" O.D. 2.42" I.D. tube sample
T – 3" O.D. thin-walled Shelby tube
B – Block sample
M – Macrocore

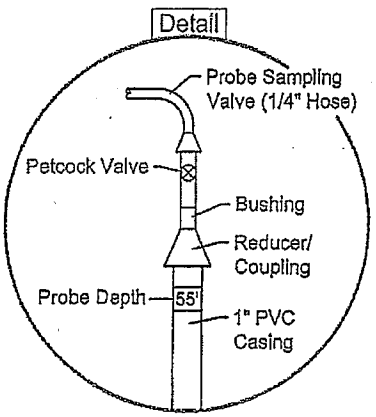
GAS MONITOR WELL SCHEMATIC GMP-18

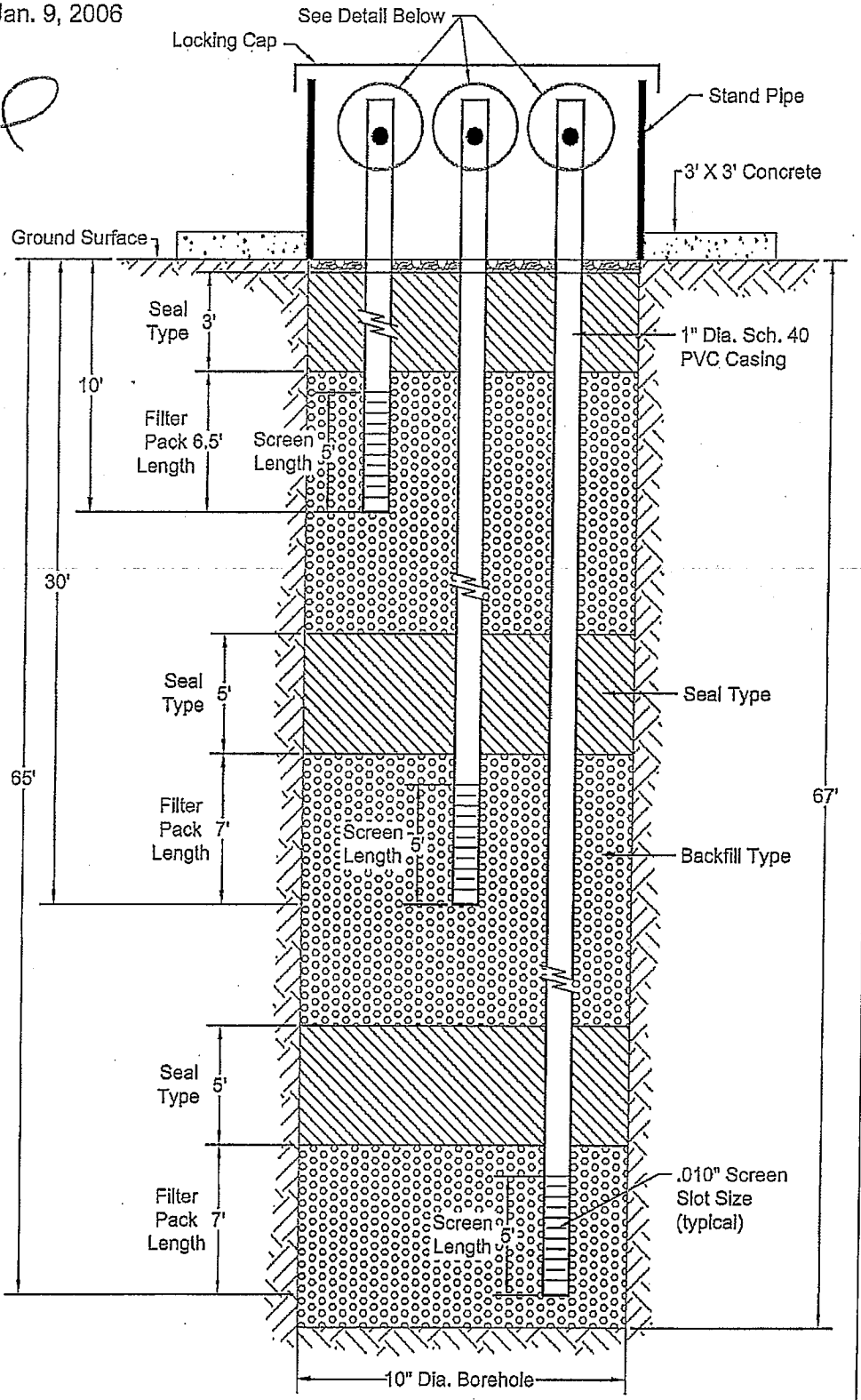
PROJECT Landfill Gas Study - McCombs Landfill
JOB NO. 4-717-000291 DATE 12/15/2004
RIG TYPE CME 75 LOGGED W. Smith
BORING TYPE 10" O.D. Hollow Stem Auger DWG BY C. Holguin
File No: P:\Drafting2\2004\0291\VMW-2 Well.dwg CHECKED BY E. Osorio
DRILLED BY Tierra

Permit No. 729A, Revision 1, Jan. 9, 2006

STATE OF TEXAS
DAVID A. VARELA
90556
LICENSED
PROFESSIONAL ENGINEER
4/28/07

Legend
1/4" Washed Gravel
Bentonite
Native Soil
Cement / Bentonite Grout





Permit No. 729A, Revision 1, Jan. 9, 2006

LOG OF TEST BORING NO. GMP-19

PROJECT McCombs Landfill Gas Study
JOB NO. 4-717-000291 DATE December 16, 2004

SHEET 1 OF 2
RIG TYPE CME 75
BORING TYPE 10" O.D. Hollow Stem Auger
SURFACE ELEV.
DATUM Existing

LOGGED BY W. Smith
DWG BY C. Holguin
CHEK'D BY D. Varela
DRILLED BY E. Osorio

Depth in meters	Sample Number	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	PID Reading @ Sample Tube	% LEL	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0			X	A		0.0	0.0	SC		CLAYEY SAND, low plasticity, red brown, damp.
								SM		SILTY SAND, low calcium carbonate induration, nonplastic, white brown, dry.
5			X	A		0.0	0.0			
								SP		SAND with some gravel, fine to coarse grained, nonplastic, light brown, dry. Gravel 1/4" to 1" sub-angular, sub-rounded.
10			X	A		0.0	0.0			
								GP		SANDY GRAVEL, nonplastic, light brown, dry. Gravel 1/4" to 1" sub-angular, sub-rounded.
15			X	A		0.0	0.0			
								SP		SAND with some gravel, fine to coarse grained, nonplastic, light brown, dry. Gravel 1/4" to 1" sub-angular, sub-rounded.
20			X	A		0.0	0.0			
25			X	A		0.0	0.0			
30			X	A		0.0	0.0			
35			X	A		0.0	0.0			
40										

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED
PROFESSIONAL GEOSCIENTIST

David L. Hartsfield, P.G.
6-28-07

GROUND WATER		
DEPTH	HOUR	DATE

SAMPLE TYPE
A – Auger cuttings
S – 2" O.D. 1.38" I.D. tube sample
U – 3" O.D. 2.42" I.D. tube sample
T – 3" O.D. thin-walled Shelby tube
B – Block sample
M – Macrocore

Permit No. 729A, Revision 1, Jan. 9, 2006

LOG OF TEST BORING NO. GMP-19

PROJECT McCombs Landfill Gas Study
JOB NO. 4-717-000291 DATE December 16, 2004
SHEET 2 OF 2
RIG TYPE CME 75
BORING TYPE 10" O.D. Hollow Stem Auger
SURFACE ELEV.
DATUM Existing
LOGGED BY W. Smith
DWG BY C. Holguin
CHEK'D BY D. Varela
DRILLED BY E. Osorio

Depth in meters	Sample Number	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	PID Reading @ Sample Tube	% LEL	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
40			X	A		0.0	0.0	SP		SAND, fine to coarse grained, nonplastic, light brown, dry.
45			X	A		0.0	0.0			
50			X	A		0.0	0.0			
55			X	A		0.0	0.0			
60			X	A		0.0	0.0			
65			X	A		0.0	0.0			
70										Auger Stopped at 68'.
75										
80										

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED PROFESSIONAL GEOSCIENTIST

D. L. Hartsfield, P.G.
6-28-07

GROUND WATER		
DEPTH	HOUR	DATE

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U – 3" O.D. 2.42" I.D. tube sample
T – 3" O.D. thin-walled Shelby tube
B – Block sample
M – Macrocore

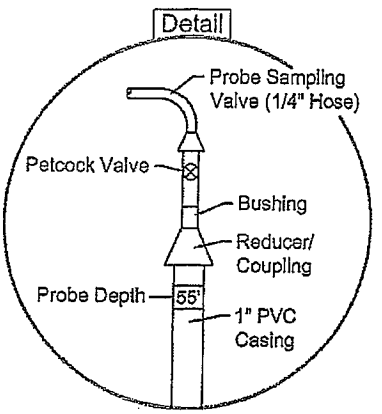
GAS MONITOR WELL SCHEMATIC GMP-19

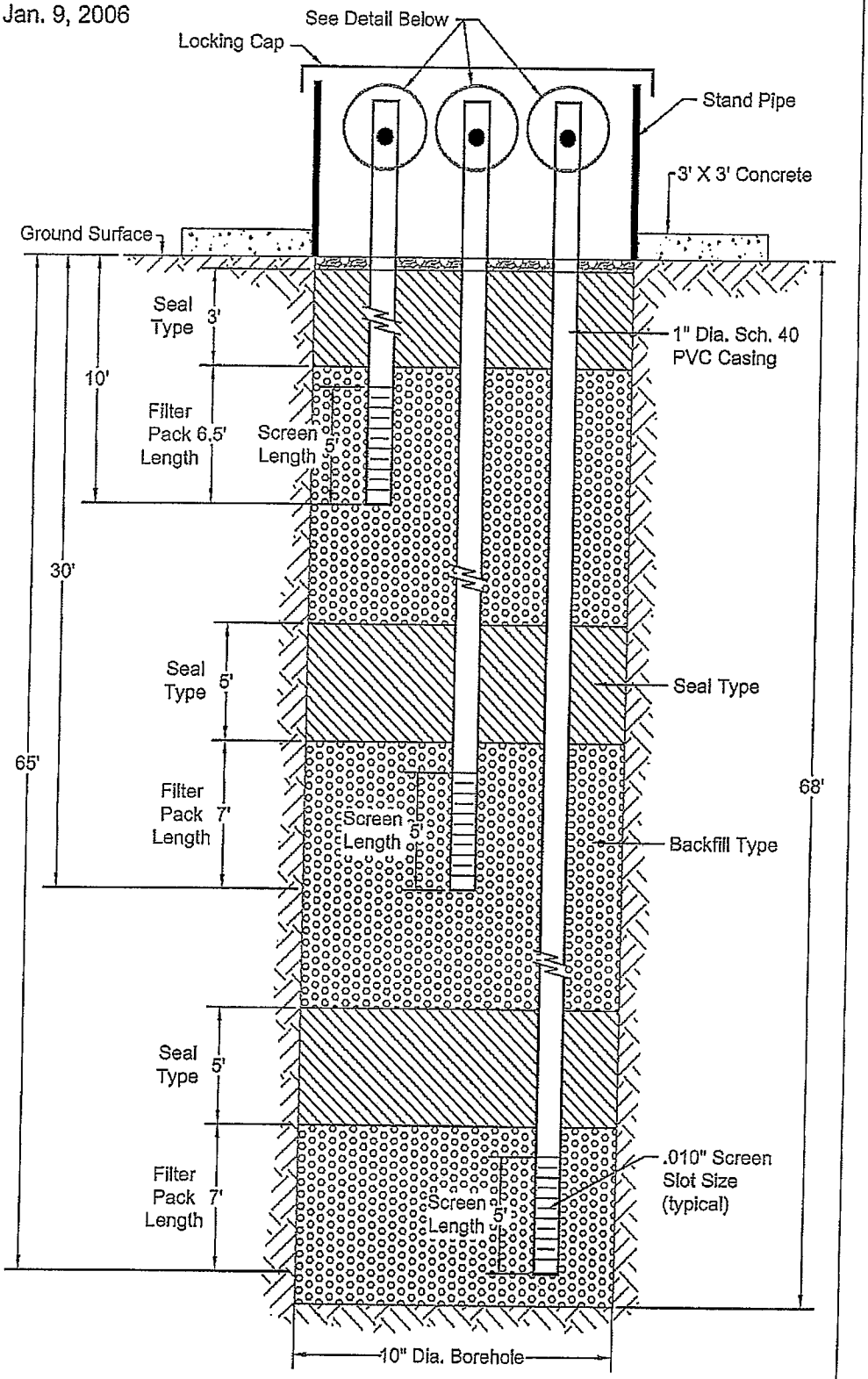
PROJECT Landfill Gas Study - McCombs Landfill
JOB NO. 4-717-000291 DATE 12/15/2004
RIG TYPE CME 75 LOGGED W. Smith
BORING TYPE 10" O.D. Hollow Stem Auger DWG BY C. Holguin
File No: P:\Drafting2\2004\0291\VMW-3 Well.dwg CHECKED BY E. Osorio
DRILLED BY Tierra

Permit No. 729A, Revision 1, Jan. 9, 2006

STATE OF TEXAS
DAVID A. VAHELA
90556
LICENSED
PROFESSIONAL ENGINEER
6/28/07

Legend
1/4" Washed Gravel
Bentonite
Native Soil
Cement / Bentonite Grout





AMEC Earth and Enviromental
125 Montoya Rd.
El Paso 79932
Telephone: 915.585.2472
Fax: 915 585.2626

BORING NUMBER GMP-20

CLIENT City of El Paso
PROJECT NAME McCombs Landfill
PROJECT NUMBER 6-717-000104
PROJECT LOCATION 13600 McCombs, El Paso, Texas 79934
DATE STARTED 09/08/06 COMPLETED 09/08/06
GROUND ELEVATION ____ HOLE SIZE 10-inch
DRILLING CONTRACTOR AMEC
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING ---
LOGGED BY E. Cutler CHECKED BY ____
AT END OF DRILLING ---
NOTES ____
AFTER DRILLING ---

DEPTH (ft)	LAB SAMPLE TYPE/NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
0				SILTY SAND, medium to fine grained, mostly medium, moderately plastic, white to brown, dry.	
5	1	SM		SILTY SAND, same as above, with trace gravel, white to brown, dry.	0.0
10				10.0	
	2			SAND, fine to medium grained, mostly medium, trace nonplastic fines, trace pea size gravel, light brown, dry.	0.0
15	3			SAND, same as above, dry.	0.0
20	4			SAND, same as above, dry.	0.0
25	5			SAND, coarse to medium grained, mostly medium, trace pea size gravel, white to brown, dry	0.0
30	6			SAND, hard to fine grained, mostly fine, white to brown, dry.	0.0
35				35.0 SAND, hard to fine grained, mostly fine, white to brown, dry.	

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED PROFESSIONAL GEOSCIENTIST

David L. Hartsfield P.G.
6-28-07

(Continued Next Page)

AMEC WELL LOG AND DIAGRAM BORE LOGS GMP-20 TO 22.GPJ GINT US LAB.GDT 06/27/07

AMEC Earth and Environmental
125 Montoya Rd.
El Paso 79932
Telephone: 915.585.2472
Fax: 915.585.2626

BORING NUMBER GMP-20

CLIENT City of El Paso

PROJECT NAME McCombs Landfill

PROJECT NUMBER 6-717-000104

PROJECT LOCATION 13600 McCombs, El Paso, Texas 79934

DEPTH (ft)	LAB SAMPLE TYPE/NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
35	7			SAND, hard to fine grained, mostly fine, white to brown, dry.	
40	8			SAND, same as above, dry.	0.0
45	9			SAND, fine to medium sand, mostly medium, trace pea size gravel, light brown to white, dry.	0.0
50	10			SAND, medium to very fine, mostly fine, light brown to white, dry.	0.0
55	11			SAND, fine to very fine, mostly fine, light brown to white, dry.	0.0
60	12			SAND, same as above.	0.0
65			65.0	SAND, same as above	
	13			Boring Terminated at 65'.	0.0
				Bottom of hole at 65.0 feet.	
70					
75					

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6-28-07

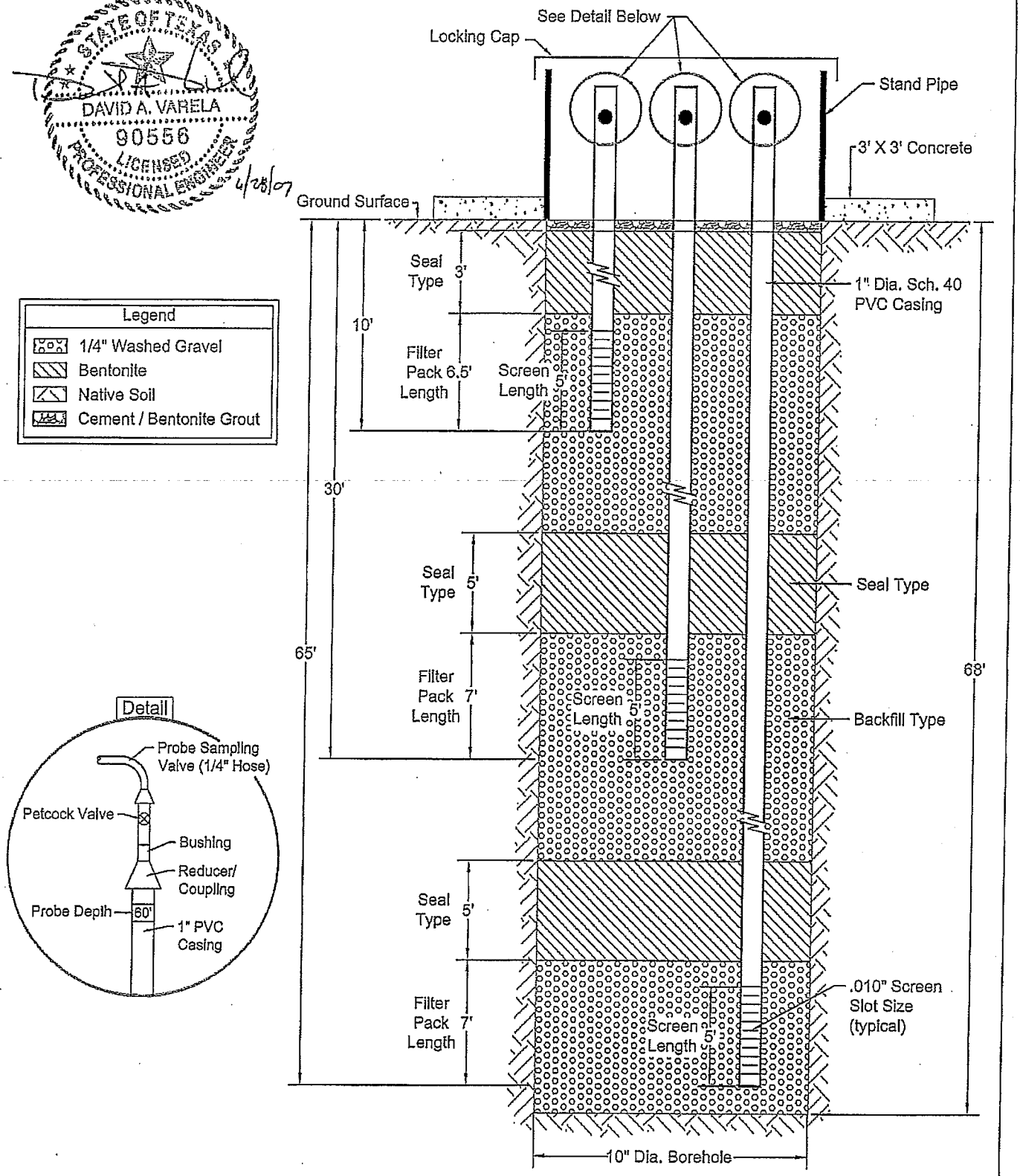
AMEC WELL LOG AND DIAGRAM BORE LOGS GMP-20 TO 22.GPJ GINT US LAB.GDT 06/27/07

GAS MONITOR WELL SCHEMATIC GMP-20

PROJECT McCombs Landfill Methane Support
JOB NO. 6-717-000104 DATE 9/08/2006
RIG TYPE Mobile B-57 LOGGED E. Cuttler
BORING TYPE 10" O.D. Hollow Stem Auger DWG BY E. Osorio
File No: P:\Drafting\2006\0104\Well.. GMP-20.dwg CHECKED BY D. Hartsfield
DRILLED BY TSS

amec

STATE OF TEXAS
DAVID A. VARELA
90556
LICENSED
PROFESSIONAL ENGINEER
4/28/07



AMEC Earth and Environmental
125 Montoya Rd.
El Paso 79932
Telephone: 915.585.2472
Fax: 915.585.2626

BORING NUMBER GMP-21

CLIENT City of El Paso
PROJECT NAME McCombs Landfill
PROJECT NUMBER 6-717-000104
PROJECT LOCATION 13600 McCombs, El Paso, Texas 79934
DATE STARTED 09/08/06 COMPLETED 09/08/06
GROUND ELEVATION ____ HOLE SIZE 10-inch
DRILLING CONTRACTOR AMEC
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING ---
LOGGED BY E. Cutler CHECKED BY ____
AT END OF DRILLING ---
NOTES ____
AFTER DRILLING ---

DEPTH (ft)	LAB SAMPLE TYPE/NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
0				SILTY SAND, coarse to medium, some nonplastic fines, brown, dry.	
5	1	SM		SILTY SAND, same as above, with trace gravel, white to brown, dry.	0.0
10	2			10.0 SAND, fine to medium grained, mostly medium, trace nonplastic fines, trace gravel, white to brown, dry.	0.0
15	3			SAND, same as above, white to brown, dry.	0.0
20	4	SP		SAND, same as above, white to brown, dry.	0.0
25	5			SAND, same as above, white to brown, dry.	0.0
30	6			SAND, same as above, white to brown, dry.	0.0
35				35.0 SAND, same as above, white to brown, dry.	

STATE OF TEXAS
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P.G.
6-28-07

(Continued Next Page)

AMEC WELL LOG AND DIAGRAM BORE LOGS GMP-20 TO 22.GPJ GINT US LAB.GDT 06/27/07

AMEC Earth and Enviromental
125 Montoya Rd.
El Paso 79932
Telephone: 915.585.2472
Fax: 915.585.2626

BORING NUMBER GMP-21

CLIENT City of El Paso
PROJECT NAME McCombs Landfill
PROJECT NUMBER 6-717-000104
PROJECT LOCATION 13600 McCombs, El Paso, Texas 79934

DEPTH (ft)	LAB SAMPLE TYPE/NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
35	7	SP		SAND, fine to very fine, mostly fine, trave pea size gravel, white to brown, dry.	0.0
40	8	SP		SAND, medium to fine grained, mostly fine, trace pea size gravel, white to brown, dry.	0.0
45	9	SP		SAND, same as above, white to brown, dry.	0.0
50	10	CL	50.0	SANDY CLAY, some medium to fine sand, mostly medium, slightly plastic, medium brown, dry.	0.0
55	11	SP	53.0	SAND, medium to fine, mostly fine, white to brown, dry.	0.0
60	12	SP		SAND, fine to very fine grained, mostly fine, light brown to white, dry.	0.0
65	13		65.0	Boring Terminated at 65'. Bottom of hole at 65.0 feet.	0.0
70					
75					

STATE OF TEXAS
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P.G.
6-28-07

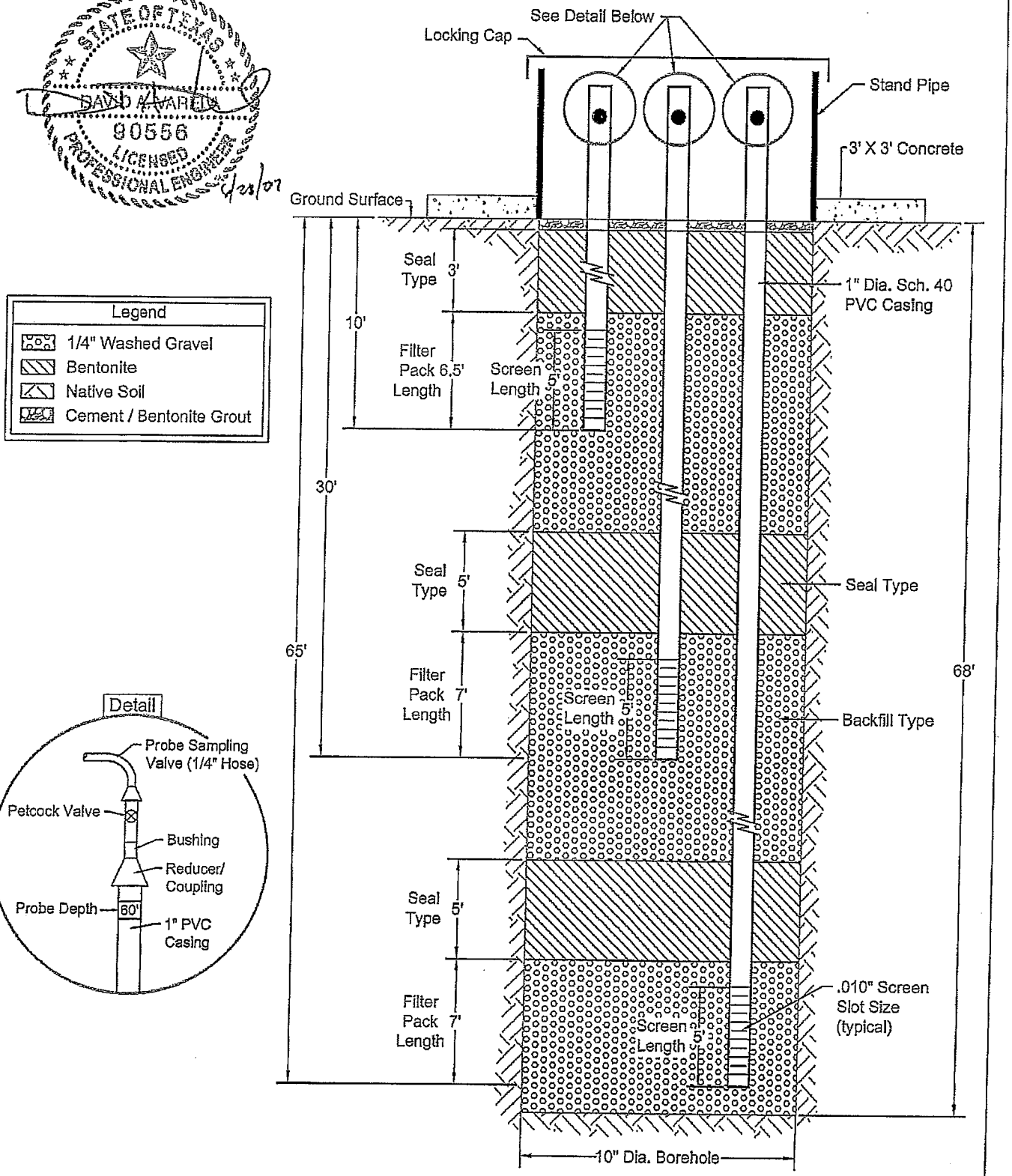
AMEC WELL LOG AND DIAGRAM BORE LOGS GMP-20 TO 22.GPJ GINT US LAB.GDT 06/27/07

GAS MONITOR WELL SCHEMATIC GMP-21

PROJECT McCombs Landfill Methane Support
JOB NO. 6-717-000104 DATE 9/08/2006
RIG TYPE Mobile B-57 LOGGED E. Cuttler
BORING TYPE 10" O.D. Hollow Stem Auger DWG BY E. Osorio
File No: P:\Drafting\2006\0104\Well.. GMP-21.dwg CHECKED BY D. Hartsfield
DRILLED BY TSS

amec

STATE OF TEXAS
DAVID A. HARRIS
90556
LICENSED
PROFESSIONAL ENGINEER
4/25/07



Legend
- 1/4" Washed Gravel
- Bentonite
- Native Soil
- Cement / Bentonite Grout

AMEC Earth and Enviromental
125 Montoya Rd.
El Paso 79932
Telephone: 915.585.2472
Fax: 915.585.2626

BORING NUMBER GMP-22

CLIENT City of El Paso
PROJECT NAME McCombs Landfill
PROJECT NUMBER 6-717-000104
PROJECT LOCATION 13600 McCombs, El Paso, Texas 79934
DATE STARTED 09/09/06 COMPLETED 09/09/06
GROUND ELEVATION ____ HOLE SIZE 10-Inch
DRILLING CONTRACTOR AMEC
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING —
LOGGED BY E. Cutler CHECKED BY ____
AT END OF DRILLING —
NOTES ____
AFTER DRILLING —

DEPTH (ft)	LAB SAMPLE TYPE/NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
0		SM		SILTY SAND, medium to fine, mostly medium, some nonplastic fines, trace gravel, brown, dry.	
5				5.0	
10	1	SP		SAND, medium to fine grained, mostly medium, trace silt, trace gravel, light brown, dry.	0.0
				10.0	
15	2	SP		GRAVELLY SAND, medium to coarse sand, mostly medium, some 1/8" to 1/2" pea gravel, white to brown, dry.	0.0
				15.0	
20	3	SP		SAND, coarse to fine, mostly medium, trace gravel, white to brown, dry.	0.0
	4			SAND, same as above, white to brown, dry.	0.0
25	5			SAND, medium to fine grained, mostly fine, white to brown, dry.	0.0
30	6			SAND, same as above, with trace pea size gravel, white to brown, dry	0.0
35				SAND, same as above, white to brown, dry.	
				35.0	

STATE OF TEXAS
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David L. Hartsfield, P.G.
6-28-07

(Continued Next Page)

AMEC WELL LOG AND DIAGRAM BORE LOGS GMP-20 TO 22.GPJ GINT US LAB.GDT 08/27/07

AMEC Earth and Enviromental
125 Montoya Rd.
El Paso 79932
Telephone: 915.585.2472
Fax: 915.585.2626

BORING NUMBER GMP-22

CLIENT City of El Paso

PROJECT NAME McCombs Landfill

PROJECT NUMBER 6-717-000104

PROJECT LOCATION 13600 McCombs, El Paso, Texas 79934

DEPTH (ft)	LAB SAMPLE TYPE/NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	PID (ppm)
35					
	7			SAND, same as above, white to brown, dry.	0.0
40					
	8			SAND, fine to very fine grained, mostly fine, white to brown, dry.	0.0
45					
	9			SAND, same as above, white to brown, dry.	0.0
50					
	10	SP		SAND, coarse to finegrained, mostly medium, dark to light brown, damp.	0.0
55					
	11			SAND, same as above, white to brown, dry.	0.0
60					
	12			SAND, same as above, with trace pea size gravel, white to brown, dry.	0.0
65			65.0		
	13			Boring Terminated at 65'.	0.0
				Bottom of hole at 65.0 feet.	
70					
75					

STATE OF TEXAS
David L. Hartsfield
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P.G.
6-28-07

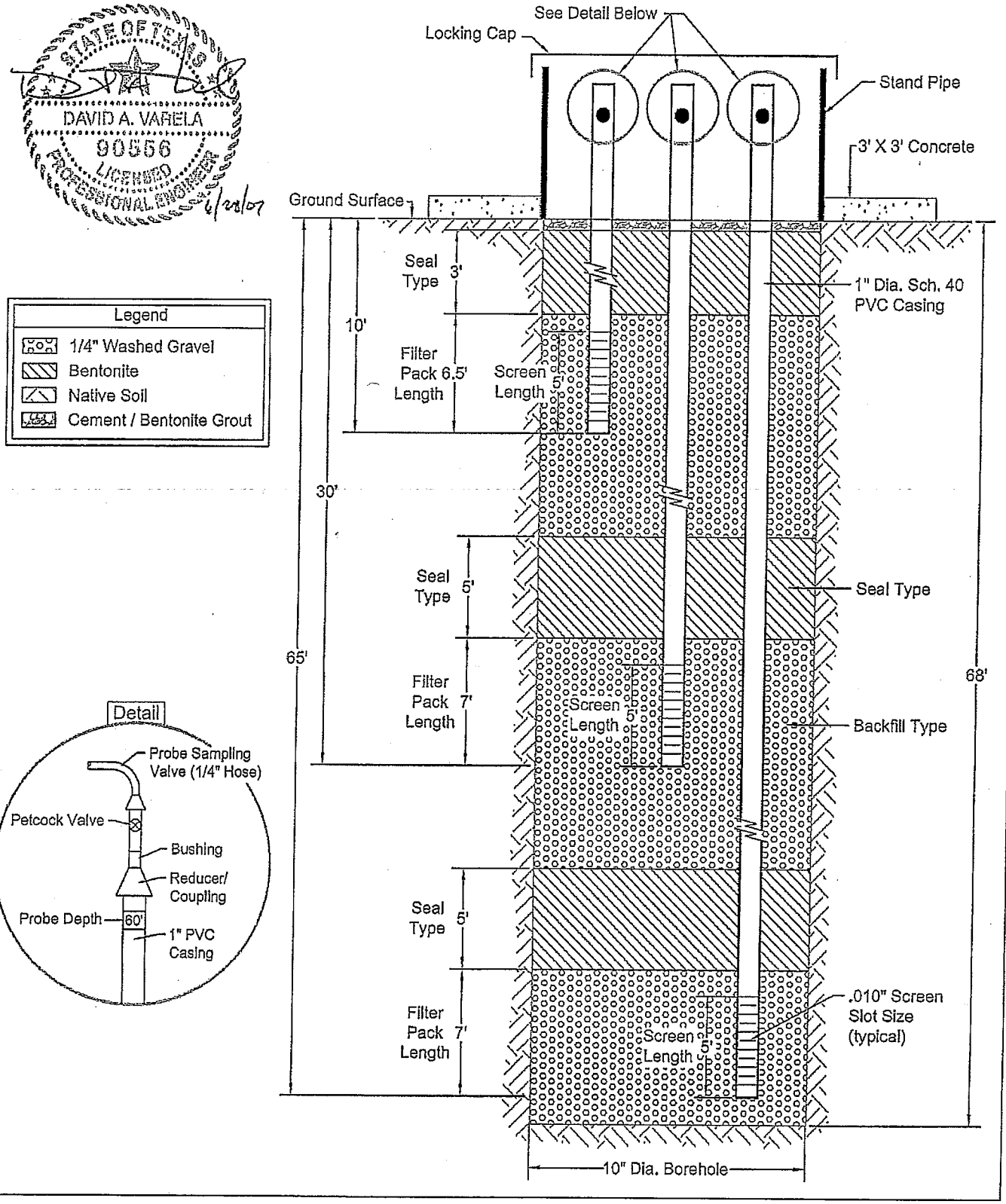
AMEC WELL LOG AND DIAGRAM BORE LOGS GMP-20 TO 22.GPJ GINT US LAB.GDT 06/27/07

GAS MONITOR WELL SCHEMATIC GMP-22

PROJECT McCombs Landfill Methane Support
JOB NO. 6-717-000104 DATE 9/09/2006
RIG TYPE Mobile B-57 LOGGED E. Cutler
BORING TYPE 10" O.D. Hollow Stem Auger DWG BY E. Osorio
File No: P:\Drafting\2006\0104\Well.. GMP-22.dwg CHECKED BY D. Hartsfield
DRILLED BY TSS

amec

STATE OF TEXAS
DAVID A. VARELA
90556
LICENSED
PROFESSIONAL ENGINEER
6/28/07



Legend
1/4" Washed Gravel
Bentonite
Native Soil
Cement / Bentonite Grout

Attention Owner:
Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of Licensing and Regulation

Water Well Driller/Pump Installer Section
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616
Toll free (800)803-9202
Email address: water.well@license.state.tx.us Web address: www.license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

WELL REPORT

A. WELL IDENTIFICATION AND LOCATION DATA

1) OWNER

Name:	Address:	City:	State:	Zip:
The City of El Paso, Texas	2 Civic Center Plaza	El Paso	Texas	79901

2) WELL LOCATION

Well # or # of wells drilled	County:	Physical Address:	City:
MP- 6C	El Paso	13600 McCombs	El Paso/79934

Lat.	Long.	Grid #
106° 24.844'	31° 59.379'	49-05-3

3) Type of Work
☒ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening

4) Proposed Use (check) ☒ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Extraction ☐ Industrial ☐ Irrigation ☐ Injection ☐ Closed-Loop Geothermal ☐ De-watering ☐ Testwell ☐ Rig Supply ☐ Stock ☐ Public Supply – If Public Supply, were plans approved? ☐ Yes ☐ No

5) N↑

6) Drilling Date
Started 05 / 23 / 07
Completed 05 / 24 / 07

Diameter of Hole

Dia.(in)	From (ft)	To (ft)
7	Surface 0	60

7) Drilling Method (check)
☐ Driven ☐ Air Rotary ☐ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☒ Hollow Stem Auger ☐ Reverse Circulation ☐ Other

From (ft)	To (ft)	Description and color of formation material
0	2	Sand, brown, dry.
2	60	Land-fill trash.

(Use reverse side of Well Owner's copy, If necessary)

8) Borehole Completion ☐ Open Hole ☐ Straight Wall ☐ Under-reamed ☐ Gravel Packed ☒ Other SIO2
~~Gravel~~ packed interval from: 22 ft. to: 60 ft. Size: 10/20

Casing, Blank Pipe, and Well Screen Data

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc Screen Mfg., if commercial	Setting (ft) From	Setting (ft) To	Gage Casing Screen
2	New	PVC Casing,	+3	24	Blk.
2	New	PVC Screen, Mfg.	24	59	0.01

9) Annular Seal Data: i.e. (from 0 ft to 100 ft #sacks & material 13 cement)
from 0 ft. to 18 ft. #sacks & material 3sk/cmt.
from 18 ft. to 22 ft. #sacks & material 2sk/bent.
from ____ ft. to ____ ft. #sacks & material ____
Method Used poured Performed By Tierra
Distance to septic field or other concentrated contamination 0 ft.
Distance to Property Line 200 ft Method visual
Verified: JPM Land-fill cell

13) Plugged ☐ Well plugged within 48 hours N/A

Casing left in well: From (ft)	Casing left in well: To (ft)	Cement/Bentonite placed in well: From (ft)	Cement/Bentonite placed in well: To (ft)	# Sacks & Material used

10) Surface Completion (If steel cased, leave blank)
☐ Surface Slab Installed ☒ Surface Sleeve Installed ☐ Pitless Adapter Used ☐ Alternative Procedure Used

14) Type Pump
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other N/A
Depth to pump bowls, cylinder, jet etc., ____ ft.

11) Water Level Well Dry when set.
Static level ____ ft. Date: / /
Artesian Flow ____ gpm

12) Packers: N/A

Type	Depth	Type	Depth

15) Water Test N/A
Type test ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: ____ gpm with ____ ft. drawdown after ____ hrs.

16) Water Quality
Type of water N/A Depth of Strata: ____ Was a chemical analysis made? ☐ Yes ☒ No
Did you knowingly penetrate a strata which contains undesirable constituents? ☒ Yes ☐ No If yes, Continue:
Check One: ☐ Naturally poor-quality groundwater – type ____ ☒ Hydrocarbons (i.e. gas, oil, etc.) ☒ Hazardous material/waste contamination encountered ☐ Other (describe) ____

☒ *I certify that while drilling, deepening, or otherwise altering the above described well, undesirable water or constituents was encountered and the landowner was informed that such well must be completed or plugged in such a manner as to avoid injury or pollution.*

By signing this well report, I certify that I drilled or supervised the drilling of this well and that each and all of the statements herein are true and correct.

Company & Individual's Name: (type or print)	Lic. No.:
Tierra Drilling & Env.Svc.Inc. John P. McDuffee	2994A

Address:	City:	State:	Zip
5309 Mace St. Ste.A1	El Paso	Tx.	79932

Signature: Licensed Driller/Pump Installer	Date	Signature: Apprentice	Apprentice Reg. Number
John P. McDuffee	06/06/07		

Permit No. 729A Revision 1, January 9, 2006

Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of License and Regulation

Water Well Driller/Pump Installer Program
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616
Toll free (800)803-9202
Email address: water.well@license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

WELL REPORT

Name	Address	City	State	Zip
City of El Paso, Texas	2 Civic Center Plaza	El Paso	Texas	79901

County	Physical Address	City	State	Zip
El Paso	See page 1			

3) Type of Work Pg. 2 of 2
☒ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening
VMW-18

Lat. Long. Grid # 49-05-03

4) Proposed Use (check) ☒ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell ☐ Rig Supply
If Public Supply well, were plans submitted? ☐ Yes ☐ No

5) NT e

6) Drilling Date
Started 12/ 15 / 04
Completed 12 / 15 / 04

Diameter of Hole

Dia.(in)	From (ft)	To (ft)
11	0	67

7) Drilling Method (check) ☐ Driven ☐ Air Rotary ☐ Mud Rotary ☒ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other

From (ft)	To (ft)	Description and color of formation material
		*#8&#9 Borehole Completion & Cement Data
0	5	0-5 ft. Bentonite chips
5	18	5-18ft. Gravel, .25inch
18	23	18-23ft. Bentonite chips
23	53	23-53ft. Gravel, .25inch
53	58	53-58ft. Bentonite chips
58	67	58-67ft. Gravel, .25inch

(Use reverse side of Well Owner's copy, If necessary)

8) Borehole Completion ☐ Open Hole ☐ Straight Wall ☐ Under-reamed ☐ Gravel Packed ☒ Other See#8&9
If Gravel Packed give the interval from ft. to ft.

Casing, Blank Pipe, and Well Screen Data

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc Screen Mfg., if commercial	Setting (ft) From	Setting (ft) To	Gage Casing	Gage Screen
1	New	PVC Casing,	+2.5	5	Blk.	
1	New	PVC Screen. Mfg.	5	10		0.01

9) Cementing Data See #8&#9 and page 1
Cementing from ____ ft. to ____ ft. # of sacks used ____
____ ft. to ____ ft. # of sacks used ____
Method Used ____
Cementing By ____
Distance to septic system field or other concentrated contamination ____ ft.
Method of verification of above distance ____

13) Plugged ☐ Well plugged within 48 hours N/A

Casing left in well: From (ft)	To (ft)	Cement/Bentonite placed in well: From (ft)	To (ft)	Sacks used

10) Surface Completion
☐ Specified Surface Slab Installed
☒ Specified Surface Sleeve Installed
☐ Pitless Adapter Used
☐ Approved Alternative Procedure Used

14) Type Pump
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☒ Other N/A
Depth to pump bowls, cylinder, jet etc.. ft.

15) Water Test
Typetest ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: ____ gpm with ____ ft. drawdown after ____ hrs.

11) Water Level N/A
Static level ____ ft. below Date / /
Artesian Flow ____ gpm. Date / /

16) Water Quality
Did you knowingly penetrate a strata which contain undesirable constituents.
☐ YES ☒ NO If yes, did you submit a REPORT OF UNDESIRABLE WATER
Type of water ____ Depth of Strata ____
Was a chemical analysis made ☐ Yes ☒ No

12) Packers N/A Type Depth

Company or individual's Name (type or print)	Tierra Drilling & Env.Svc.Inc.	Lic. No. 2994W	
Address 5309 Mace St. Suite A1	City El Paso	State Texas	Zip 79932
Signature John P McDuffee	01/03/05	Signature	/ /

Permit No. 729A Revision 1, January 9, 2006

Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of License and Regulation

Water Well Driller/Pump Installer Program
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616
Toll free (800)803-9202
Email address: water.well@license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

WELL REPORT

Name	Address	City	State	Zip
City of El Paso, Texas	2 Civic Center Plaza	El Paso	Texas	79901

County	Physical Address	City	State	Zip
El Paso	13600 McCombs St.	El Paso	Texas	79934

Lat. 106° 24.524' Long. 31° 59.506' Grid # 49-05-03

3) Type of Work Pg. 1 of 2
☒ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening
VMW-1 (3-strings)

4) Proposed Use (check) ☒ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell ☐ Rig Supply
If Public Supply well, were plans submitted? ☐ Yes ☐ No

5) NT

6) Drilling Date
Started 12/ 15 / 04
Completed 12 / 15 /04

Diameter of Hole

Dia.(in)	From (ft)	To (ft)
11	0	67

7) Drilling Method (check) ☐ Driven ☐ Air Rotary ☐ Mud Rotary ☒ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other

From (ft)	To (ft)	Description and color of formation material
0	7	Silt/sand, with caliche, light brown, dry.
7	67	Sand, gravel, brown, dry.

(Use reverse side of Well Owner's copy, if necessary)

8) Borehole Completion ☐ Open Hole ☐ Straight Wall ☐ Under-reamed ☐ Gravel Packed ☒ Other See Pg. 2*
If Gravel Packed give the interval from ft. to ft.

Casing, Blank Pipe, and Well Screen Data

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc Screen Mfg., if commercial	Setting (ft) From	Setting (ft) To	Gage Casing	Gage Screen
1	New	PVC Casing,	+2.5	60	Blk.	
1	New	PVC Screen.	60	65		0.01
1	New	PVC Casing,	+2.5	25	Blk.	
1	New	PVC Screen,	25	30		0.01

9) Cementing Data See #8&9 page two *
Cementing from ft. to ft. # of sacks used
ft. to ft. # of sacks used
Method Used Tremie placed via auger
Cementing By Tierra Drilling
Distance to septic system field or other concentrated contamination 20 ft.
Method of verification of above distance Landfill

13) Plugged ☐ Well plugged within 48 hours
Casing left in well: Cement/Bentonite placed in well: N/A

From (ft)	To (ft)	From (ft)	To (ft)	Sacks used

10) Surface Completion
☐ Specified Surface Slab Installed
☒ Specified Surface Sleeve Installed
☐ Pitless Adapter Used
☐ Approved Alternative Procedure Used

14) Type Pump
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☒ Other N/A
Depth to pump bowls, cylinder, jet etc., ft.

15) Water Test N/A
Typetest ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

11) Water Level N/A
Static level ft. below Date / /
Artesian Flow gpm. Date / /

16) Water Quality
Did you knowingly penetrate a strata which contain undesirable constituents
☐ YES ☒ NO If yes, did you submit a REPORT OF UNDESIRABLE WATER
Type of water Depth of Strata
Was a chemical analysis made ☐ Yes ☒ No

12) Packers N/A Type Depth

Company or individual's Name (type or print)	Tierra Drilling & Env.Svc.Inc.	Lic. No. 2994W	
Address 5309 Mace St. Suite A1	City El Paso	State Texas	Zip 79932
Signature John P. McDuffee	01/03/05	Signature	/ /

Permit No. 729A Revision 1, January 9, 2006

Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of License and Regulation

Water Well Driller/Pump Installer Program
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616
Toll free (800)803-9202
Email address: water.well@license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

WELL REPORT

Name	Address	City	State	Zip
City of El Paso, Texas	2 Civic Center Plaza	El Paso	Texas	79901

County	Physical Address	City	State	Zip
El Paso	See page 1			

3) Type of Work Pg. 2 of 2
☒ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening
VMW-19

Lat. Long. Grid # 49-05-03

4) Proposed Use (check) ☒ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell ☐ Rig Supply
If Public Supply well, were plans submitted? ☐ Yes ☐ No

5) N↑

6) Drilling Date
Started 12 / 16 / 04
Completed 12 / 16 / 04

Diameter of Hole		
Dia.(in).	From (ft)	To (ft)
11	0	68

7) Drilling Method (check) ☐ Driven ☐ Air Rotary ☐ Mud Rotary ☒ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other

From (ft)	To (ft)	Description and color of formation material
* #8&#9 Borehole Completion & Cement Data		
0-5 ft.		Bentonite chips
5-18ft.		Gravel, .25inch
18-23ft.		Bentonite chips
23-53ft.		Gravel, .25inch
53-58ft.		Bentonite chips
58-68ft.		Gravel, .25inch

(Use reverse side of Well Owner's copy, If necessary)

8) Borehole Completion ☐ Open Hole ☐ Straight Wall ☐ Under-reamed ☐ Gravel Packed ☒ Other See#8&#9
If Gravel Packed give the interval from ft. to ft.

Casing, Blank Pipe and Well Screen Data

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc Screen Mfg., if commercial	Setting (ft) From	Setting (ft) To	Gage Casing	Gage Screen
1	New	PVC Casing,	+2.5	5	Blk.	
1	New	PVC Screen,	5	10		0.01
		Mfg.				

9) Cementing Data See #8&#9 and page 1
Cementing from ft. to ft. # of sacks used
ft. to ft. # of sacks used
Method Used
Cementing By
Distance to septic system field or other concentrated contamination ft.
Method of verification of above distance

13) Plugged ☐ Well plugged within 48 hours
Casing left in well: Cement/Bentonite placed in well: N/A

From (ft)	To (ft)	From (ft)	To (ft)	Sacks used

10) Surface Completion
☐ Specified Surface Slab Installed
☒ Specified Surface Sleeve Installed
☐ Pitless Adapter Used
☐ Approved Alternative Procedure Used

14) Type Pump
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☒ Other N/A
Depth to pump bowls, cylinder, jet etc., ft.

15) Water Test N/A
Typetest ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

11) Water Level N/A
Static level ft. below Date / /
Artesian Flow gpm. Date / /

16) Water Quality
Did you knowingly penetrate a strata which contain undesirable constituents.
☐ YES ☒ NO If yes, did you submit a REPORT OF UNDESIRABLE WATER
Type of water Depth of Strata
Was a chemical analysis made ☐ Yes ☒ No

12) Packers N/A Type Depth

Company or individual's Name (type or print)	Tierra Drilling & Env.Svc.Inc.	Lic. No. 2994W
Address 5309 Mace St. Suite A1	City El Paso	State Texas Zip 79932
Signature John P. McDuffee 01,03,05	Signature	/ /

Permit No. 729A Revision 1, January 9, 2006

Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of License and Regulation

Water Well Driller/Pump Installer Program
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616
Toll free (800)803-9202
Email address: water.well@license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

WELL REPORT

Name	Address	City	State	Zip
City of El Paso Texas	2 Civic Center Plaza	El Paso	Texas	79901

County	Physical Address	City	State	Zip
El Paso	13600 McCombs St.	El Paso	Texas	79934

Lat. 106° 24.526' Long. 31° 59.686' Grid # 49-05-03

3) Type of Work Pg.1of2
☒ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening
VMW-19(3-strings)

4) Proposed Use (check) ☒ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Industrial ☐ Irrigation ☐ Injection ☐ Public Supply ☐ De-watering ☐ Testwell ☐ Rig Supply
If Public Supply well, were plans submitted? ☐ Yes ☐ No

5) NT

6) Drilling Date
Started 12 / 16 / 04
Completed 12 / 16 /04

Diameter of Hole

Dia.(in)	From (ft)	To (ft)
11	0	68

7) Drilling Method (check) ☐ Driven ☐ Air Rotary ☐ Mud Rotary ☒ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☐ Other

From (ft)	To (ft)	Description and color of formation material
0	2	Clay/sand, brown, dry.
2	7	Silt/sand, caliche, light brown, dry.
7	68	Sand, gravel, brown, dry.

(Use reverse side of Well Owner's copy, If necessary)

8) Borehole Completion ☐ Open Hole ☐ Straight Wall ☐ Under-reamed ☐ Gravel Packed ☒ Other See Pg.2*
If Gravel Packed give the interval from ft. to ft.

Casing, Blank Pipe and Well Screen Data:

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc Screen Mfg., if commercial	Setting (ft) From	Setting (ft) To	Gage Casing	Gage Screen
1	New	PVC Casing,	+2.5	60	Blk.	
1	New	PVC Screen,	60	65		0.01
1	New	PVC Casing,	+2.5	25	Blk.	
1	New	PVC Screen,	25	30		0.01

9) Cementing Data See #8&#9 page two *
Cementing from ft. to ft. # of sacks used
ft. to ft. # of sacks used
Method Used Tremie placed Via Auger
Cementing By Tierra Drilling
Distance to septic system field or other concentrated contamination 25 ft.
Method of verification of above distance Landfill

13) Plugged ☐ Well plugged within 48 hours
Casing left in well: Cement/Bentonite placed in well: N/A

From (ft)	To (ft)	From (ft)	To (ft)	Sacks used

10) Surface Completion
☐ Specified Surface Slab Installed
☒ Specified Surface Sleeve Installed
☐ Pitless Adapter Used
☐ Approved Alternative Procedure Used

14) Type Pump
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder
☒ Other N/A
Depth to pump bowls, cylinder, jet etc. ft.

15) Water Test N/A
Typetest ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

11) Water Level N/A
Static level ft. below Date / /
Artesian Flow gpm. Date / /

16) Water Quality
Did you knowingly penetrate a strata which contain undesirable constituents.
☐ YES ☒ NO If yes, did you submit a REPORT OF UNDESIRABLE WATER
Type of water Depth of Strata
Was a chemical analysis made ☐ Yes ☒ No

12) Packers N/A Type Depth

Company or individual's Name (type or print)	Tierra Drilling & Env.Svc.Inc.	Lic. No. 2994W	
Address 5309 Mace St. Suite A1	City El Paso	State Texas	Zip 79932
Signature John J. McAfee	01/03/05	Signature	/ /

TDLR FORM [illegible]

STATE OF TEXAS WELL REPORT for Tracking #96258

Owner:	City of El Paso	Owner Well #:	GMP-20
Address:	NEC McCombs Dr. @ Stan Roberts El Paso , TX	Grid #:	49-05-3
Well Location:	Same El Paso , TX	Latitude:	31° 59' 37" N
Well County:	El Paso	Longitude:	106° 24' 31" W
Elevation:	No Data	GPS Brand Used:	Motorola
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Date: Started: 9/8/2006
Completed: 9/11/2006

Diameter of Hole: Diameter: 10.25 in From Surface To 65 ft

Drilling Method: Hollow Stem Auger

Borehole Completion: Other: Pea Gravel 58-65',23-53',3-18'

Annular Seal Data: 1st Interval: From 0 ft to 1 ft with Concrete (#sacks and material)
2nd Interval: No Data
3rd Interval: No Data
Method Used: Gravity
Cemented By: Crew
Distance to Septic Field or other Concentrated Contamination: No Data
Distance to Property Line: No Data
Method of Verification: No Data
Approved by Variance: No Data

Surface Completion: Surface Sleeve Installed

Water Level: Static level: No Data
Artesian flow: No Data

Packers: No Data

Plugging Info: Casing or Cement/Bentonite left in well: No Data

Type Of Pump: No Data

Well Tests: No Data

Water Quality: Type of Water: No Data
Depth of Strata: No Data
Chemical Analysis Made: No Data
Did the driller knowingly penetrate any strata which contained undesirable constituents: No Data

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: Total Support Services
P.O. Box 81621

	Austin , TX 78708
Driller License Number:	54611
Licensed Well Driller Signature:	Brian Kern
Registered Driller Apprentice Signature:	No Data
Apprentice Registration Number:	No Data
Comments:	3 Nested Wells: 1st @ 0-10' w/Bentonite 1-3', Pea Gravel 3-18'; 2nd @ 0-25' w/Bentonite 18-23, Pea Gravel 23-53; 3rd @ 0-65' w/Bentonite 53-58', Pea Gravel 58-65.

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking #96258) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft)	To (ft)	Description
0	7	Tan Silty Sand
7	18	Tan Sand
18	24	Brown Gravelly Sand
24	65	Tan Sand

CASING, BLANK PIPE & WELL SCREEN DATA

Dia.	New/Used	Type	Setting From/To
1	New	PVC Riser	0/60 Sched. 40
1	New	PVC Screen	60/65 0.010 Slotted
1	New	PVC Riser	0/20 Sched. 40
1	New	PVC Screen	20/25 0.010 Slotted
1	New	PVC Riser	0/5 Sched.40
1	New	PVC Screen	5/10 0.010 Slotted

STATE OF TEXAS WELL REPORT for Tracking #96259

Owner:	City of El Paso	Owner Well #:	GMP 21
Address:	NEC McCombs Dr. @ Stan Roberts El Paso , TX	Grid #:	49-05-3
Well Location:	Same El Paso , TX	Latitude:	31° 59' 34" N
Well County:	El Paso	Longitude:	106° 24' 31" W
Elevation:	No Data	GPS Brand Used:	Motorola
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Date: Started: 9/8/2006
Completed: 9/11/2006

Diameter of Hole: Diameter: 10.25 In From Surface To 65 ft

Drilling Method: Hollow Stem Auger

Borehole Completion: Other: Pea Gravel 58-65',23-53',3-18'

Annular Seal Data: 1st Interval: From 0 ft to 1 ft with Concrete (#sacks and material)
2nd Interval: No Data
3rd Interval: No Data
Method Used: Gravity
Cemented By: Crew
Distance to Septic Field or other Concentrated Contamination: No Data
Distance to Property Line: No Data
Method of Verification: No Data
Approved by Variance: No Data

Surface Completion: Surface Sleeve Installed

Water Level: Static level: No Data
Artesian flow: No Data

Packers: No Data

Plugging Info: Casing or Cement/Bentonite left in well: No Data

Type Of Pump: No Data

Well Tests: No Data

Water Quality: Type of Water: No Data
Depth of Strata: No Data
Chemical Analysis Made: No Data
Did the driller knowingly penetrate any strata which contained undesirable constituents: No Data

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.

Company Information: Total Support Services
P.O. Box 81621

	Austin , TX 78708
Driller License Number:	54611
Licensed Well Driller Signature:	Brian Kern
Registered Driller Apprentice Signature:	No Data
Apprentice Registration Number:	No Data
Comments:	3 Nested Wells: 1st @ 0-10' w/Bentonite 1-3', Pea Gravel 3-18'; 2nd @ 0-25' w/Bentonite 18-23, Pea Gravel 23-53; 3rd @ 0-65' w/Bentonite 53-58', Pea Gravel 58-65.

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking number (Tracking #96259) on your written request.

Texas Department of Licensing & Regulation
P.O. Box 12157
Austin, TX 78711
(512) 463-7880

DESC. & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0 to 7 Tan Silty Sand
7 to 18 Tan Sand
18 to 24 Brown Gravelly Sand
24 to 65 Tan Sand

CASING, BLANK PIPE & WELL SCREEN DATA

Dia. New/Used Type Setting From/To
1 New PVC Riser 0/60 Sched. 40
1 New PVC Screen 60/65 0.010 Slotted

1 New PVC Riser 0/20 Sched. 40
1 New PVC Screen 20/25 0.010 Slotted

1 New PVC Riser 0/5 Sched.40
1 New PVC Screen 5/10 0.010 Slotted

STATE OF TEXAS WELL REPORT for Tracking #96260

Owner:	City of El Paso	Owner Well #:	GMP 22
Address:	NEC McCombs Dr. @ Stan Roberts El Paso , TX	Grid #:	49-05-3
Well Location:	Same El Paso , TX	Latitude:	31° 59' 36" N
Well County:	El Paso	Longitude:	106° 24' 31" W
Elevation:	No Data	GPS Brand Used:	Motorola
Type of Work:	New Well	Proposed Use:	Monitor

Drilling Date:	Started: 9/8/2006 Completed: 9/11/2006
Diameter of Hole:	Diameter: 10.25 In From Surface To 65 ft
Drilling Method:	Hollow Stem Auger
Borehole Completion:	Other: Pea Gravel 58-65',23-53',3-18'
Annular Seal Data:	1st Interval: From 0 ft to 1 ft with Concrete (#sacks and material) 2nd Interval: No Data 3rd Interval: No Data Method Used: Gravity Cemented By: Crew Distance to Septic Field or other Concentrated Contamination: No Data Distance to Property Line: No Data Method of Verification: No Data Approved by Variance: No Data
Surface Completion:	Surface Sleeve Installed

Water Level:	Static level: No Data Artesian flow: No Data
Packers:	No Data
Plugging Info:	Casing or Cement/Bentonite left in well: No Data
Type Of Pump:	No Data
Well Tests:	No Data

Water Quality:	Type of Water: No Data Depth of Strata: No Data Chemical Analysis Made: No Data Did the driller knowingly penetrate any strata which contained undesirable constituents: No Data
Certification Data:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the log(s) being returned for completion and resubmittal.
Company Information:	Total Support Services P.O. Box 81621

LOG OF TEST BORING NO. PV-3

PROJECT McCombs Municipal Solid Waste Landfill
JOB NO. 6-717-500029 DATE November 13, 2006

SHEET 1 OF 2
RIG TYPE CME 75
BORING TYPE 6 5/8" Hollow Stem Auger
SURFACE ELEV. Existing
DATUM

LOGGED E. Osorio
DWG BY E. Osorio
CHEKED BY D. Hartsfield
DRILLED BY Tierra

Depth in feet	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Hand Penetrometer (tons/sq. ft.)	Moisture Content % of Dry Weight	Unified Soil Classification	CO	LEL	H2S	REMARKS	VISUAL CLASSIFICATION
0							ML					SANDY SILT, nonplastic, light gray, dry.
							SM				Note: Trash which included plastic, paper, glass, metal mixed with .	SILTY SAND, nonplastic, light brown, dry.
5												
10							SC					CLAYEY SAND mixed with trash, low plasticity, gray, dry to damp.
15												
20												
25							CL					SANDY CLAY mixed with trash, low plasticity, dark gray, damp.
30												
35								5	100	0		
40								5	7	0		

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED
PROFESSIONAL GEOSCIENTIST

David L. Hartsfield P.G.
6-28-07

GROUND WATER		
DEPTH	HOUR	DATE

SAMPLE TYPE
A - Auger cuttings B - Block sample
S - 2" O.D. 1.38" I.D. tube sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thin-walled Shelby tube

LOG OF TEST BORING NO. PV-3

PROJECT McCombs Municipal Solid Waste Landfill
JOB NO. 6-717-500029 DATE November 13, 2006

SHEET 2 OF 2
RIG TYPE CME 75
BORING TYPE 6 5/8" Hollow Stem Auger
SURFACE ELEV. Existing
DATUM

LOGGED E. Osorio
DWG BY E. Osorio
CHEKED BY D. Hartsfield
DRILLED BY Tierra

Depth in feet	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Hand Penetrometer (tons/sq. ft.)	Moisture Content % of Dry Weight	Unified Soil Classification	CO	LEL	H2S	REMARKS	VISUAL CLASSIFICATION
40							SC	5	7	0		SANDY CLAY mixed with trash, low plasticity, dark gray, damp.
45								60	100	0	Decaying trash	
50								20	100	0	Note: Strong sewer odor, moderately stained	
55								43	100	0		
60								1500	100	0		
65												Auger Stopped at 60'
70												
75												
80												

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED PROFESSIONAL GEOSCIENTIST

D. Hartsfield, P.G.
6-28-07

GROUND WATER		
DEPTH	HOUR	DATE

SAMPLE TYPE
A - Auger cuttings B - Block sample
S - 2" O.D. 1.38" I.D. tube sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thin-walled Shelby tube

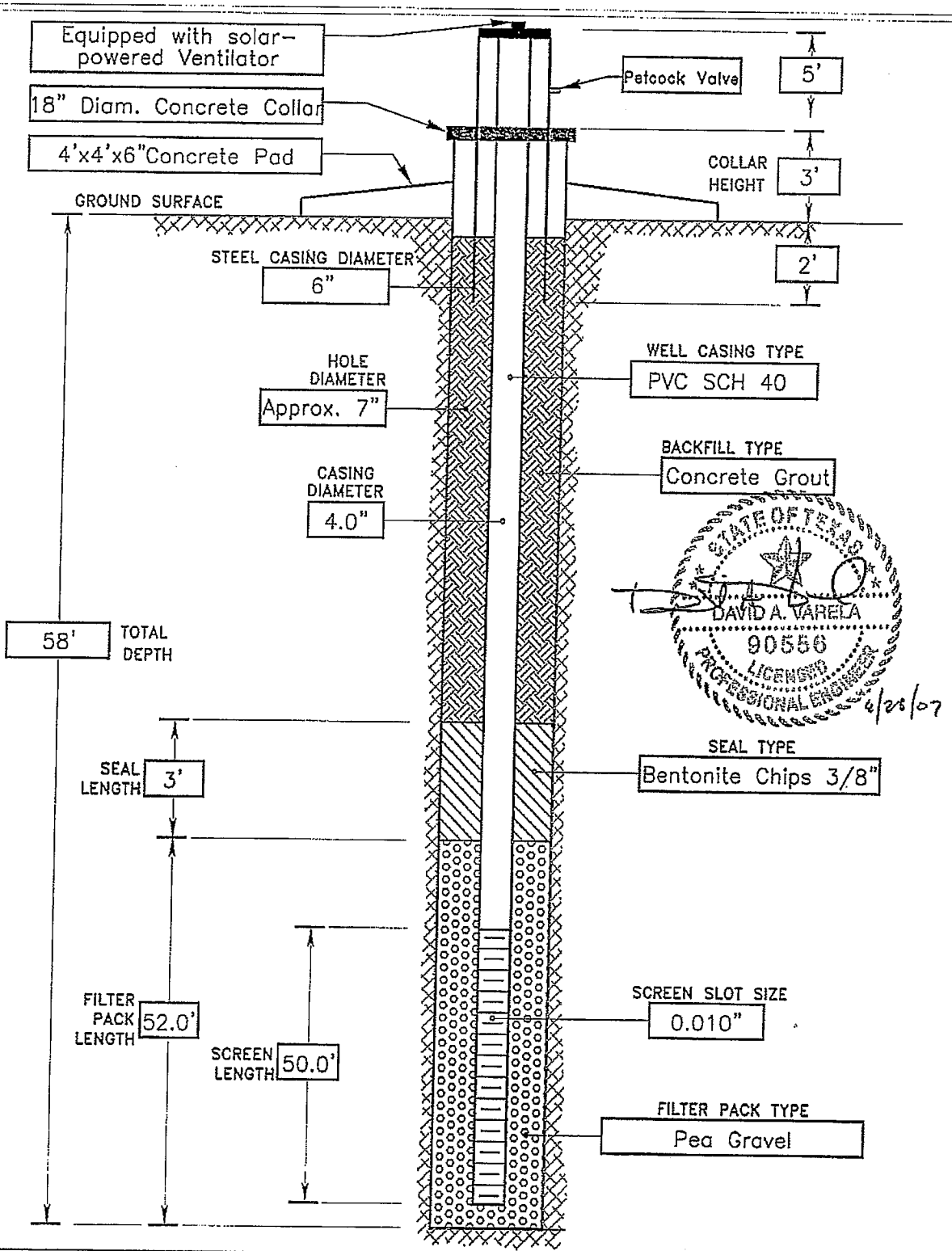
amec

PROJECT McCombs Solid Waste Landfill
JOB NO. 6-717-500029
DEVELOPMENT N/A
FORMATION OF COMPLETION N/A
COMMENTS:

WELL NUMBER: PV-3
DATE INSTALLED 11/13/2006

WELL COMPLETION LOG

GROUNDWATER DEPTH N/A
DRILL METHOD Hollow Stem Auger
DRILLER Tierra Drilling



LOG OF TEST BORING NO. PV-4

PROJECT McCombs Municipal Solid Waste Landfill
JOB NO. 6-717-500029 DATE November 9, 2006

SHEET 1 OF 2
RIG TYPE CME 75
BORING TYPE 6 5/8" Hollow Stem Auger
SURFACE ELEV. Existing
DATUM

LOGGED E. Osorio
DWG BY E. Osorio
CHEKED BY D. Hartsfield
DRILLED BY Tierra

Depth in feet	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Hand Penetrometer (tons/sq. ft.)	Moisture Content % of Dry Weight	Unified Soil Classification	CO	LEL	H2S	REMARKS	VISUAL CLASSIFICATION
0							ML					SILT WITH SAND, nonplastic, light brown, dry.
							ML				Note: Moderate methane odor, slightly stained soils	SILT WITH SAND mixed with trash, nonplastic, dark gray, dry to damp.
5												
10								10	4	0	Note: Added water to aid drilling.	
15								40	7	0	Note: Added water to aid drilling.	
20								13	6	0	Note: Added water to aid drilling.	
25							SM	7	4	0	Note: Added water to aid drilling.	SILTY SAND mixed with trash, non plastic, dark gray.
30								131	9	0	Note: High (sweet) methane odor, slightly stained soils	
35								124	100	0	Note: Added water to aid drilling.	
40							SC	7	100	0	Note: Added water to aid drilling.	CLAYEY SAND, low plasticity, dark gray.

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED PROFESSIONAL GEOSCIENTIST

David L. Hartsfield, P.G.
6-28-07

GROUND WATER		
DEPTH	HOUR	DATE

SAMPLE TYPE
A - Auger cuttings B - Block sample
S - 2" O.D. 1.38" I.D. tube sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thin-walled Shelby tube

LOG OF TEST BORING NO. PV-4

PROJECT McCombs Municipal Solid Waste Landfill
JOB NO. 6-717-500029 DATE November 9, 2006

SHEET 2 OF 2
RIG TYPE CME 75
BORING TYPE 6 5/8" Hollow Stem Auger
SURFACE ELEV. Existing
DATUM

LOGGED E. Osorio
DWG BY E. Osorio
CHEKED BY D. Hartsfield
DRILLED BY Tierra

Depth in feet	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Hand Penetrometer (tons/sq. ft.)	Moisture Content % of Dry Weight	Unified Soil Classification	CO	LEL	H2S	REMARKS	VISUAL CLASSIFICATION
40							SC	7	100	0	Note: Added water to aid drilling.	CLAYEY SAND, low plasticity, dark gray.
45								8	27	0	Note: Added water to aid drilling.	
50							CL	6	3	0	Note: Added water to aid drilling.	SANDY CLAY, medium to high plasticity, brown with dark gray, damp.
55								50	26	0		
60							CH	68	100	0	Note: Auger got stuck in clay material.	FAT CLAY, high plasticity, brown, dry.
65												Auger Stopped at 60'
70												
75												
80												

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED PROFESSIONAL GEOSCIENTIST

6-28-07

GROUND WATER		
DEPTH	HOUR	DATE

SAMPLE TYPE
A - Auger cuttings B - Block sample
S - 2" O.D. 1.38" I.D. tube sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thin-walled Shelby tube

amec

PROJECT McCombs Solid Waste Landfill WELL NUMBER: PV-4

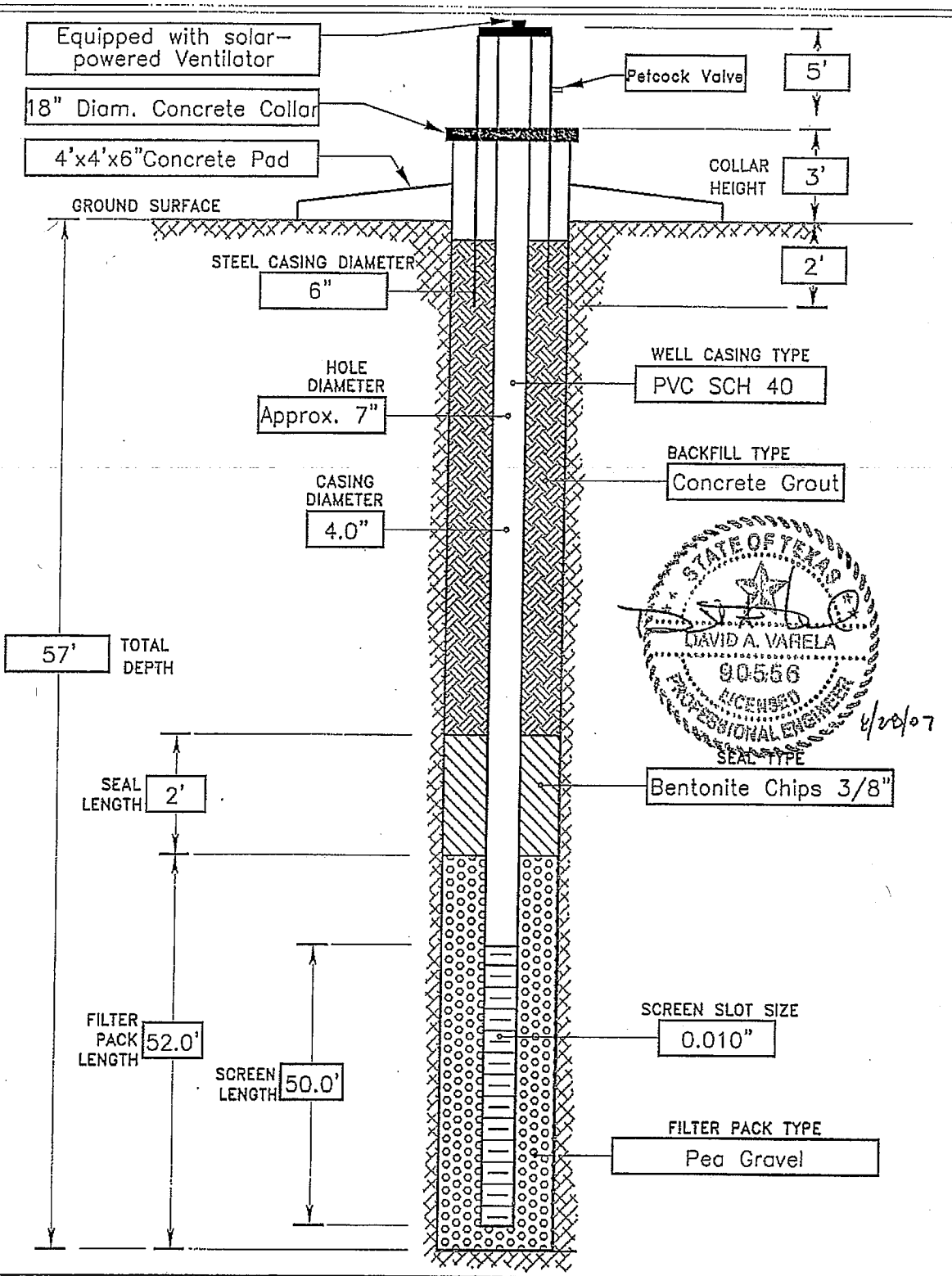
JOB NO. 6-717-500029 DATE INSTALLED 11/9/2006

WELL COMPLETION LOG

DEVELOPMENT N/A GROUNDWATER DEPTH N/A

FORMATION OF COMPLETION N/A DRILL METHOD Hollow Stem Auger

COMMENTS: DRILLER Tierra Drilling



STATE OF TEXAS
DAVID A. VARELA
90556
LICENSED
PROFESSIONAL ENGINEER
4/20/07

LOG OF TEST BORING NO. PV-5

amec

PROJECT McCombs Municipal Solid Waste Landfill
JOB NO. 6-717-500029 DATE November 9, 2006

SHEET 1 OF 2

RIG TYPE CME 75
BORING TYPE 6 5/8' Hollow Stem Auger
SURFACE ELEV. Existing
DATUM

LOGGED E. Osorio
DWG BY E. Osorio
CHEKED BY D. Hartsfield
DRILLED BY Tierra

Depth in feet	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Hand Penatrometer (tons/sq. ft.)	Moisture Content % of Dry Weight	Unified Soil Classification	CO	LEL	H2S	REMARKS	VISUAL CLASSIFICATION
0							ML					SANDY SILT, nonplastic, light gray, dry.
							ML	0	0	0		SANDY SILT mixed with trash, nonplastic, light gray, dry.
5								0	0	0		
10								149	12	0	Note: Added water to aid drilling.	
15								16	54	0	Note: Hit a tree log, had to stop to get rid of wood plug. Added water to aid drilling.	
20								0	0	0	Note: Added water to aid drilling.	
							SC				Note: Added water to aid drilling.	CLAYEY SAND, very low plasticity, dark gray.
25								83	24	0		
30							CL	0	0	0		SANDY CLAY, low plasticity, graY, moist (possibly from water added on 25' bgs).
35								183	100	0		
40								1100	100	2		

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED
PROFESSIONAL GEOSCIENTIST

P.G.
6-28-07

GROUND WATER		
DEPTH	HOUR	DATE

SAMPLE TYPE
A - Auger cuttings B - Block sample
S - 2" O.D. 1.38" I.D. tube sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thin-walled Shelby tube

LOG OF TEST BORING NO. PV-5

PROJECT McCombs Municipal Solid Waste Landfill
JOB NO. 6-717-500029 DATE November 9, 2006

SHEET 2 OF 2
RIG TYPE CME 75
BORING TYPE 6 5/8" Hollow Stem Auger
SURFACE ELEV. Existing
DATUM

LOGGED E. Osorio
DWG BY E. Osorio
CHEKED BY D. Hartsfield
DRILLED BY Tierra

Depth in feet	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Hand Penetrometer (tons/sq. ft.)	Moisture Content % of Dry Weight	Unified Soil Classification	CO	LEL	H2S	REMARKS	VISUAL CLASSIFICATION
40							CL	1100	100	2		SANDY CLAY, low plasticity, gray, moist (possibly from water added at 25' bgs)
45							SP	330	100	3		GRAVELLY SAND, nonplastic, light gray, damp.
50									100		Note: High sewer odor, slightly stained.	
55								196	100	9		
60								240	100	4		Auger Stopped at 60'
65												
70												
75												
80												

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED
PROFESSIONAL GEOSCIENTIST

P.G.
6-28-07

GROUND WATER		
DEPTH	HOUR	DATE

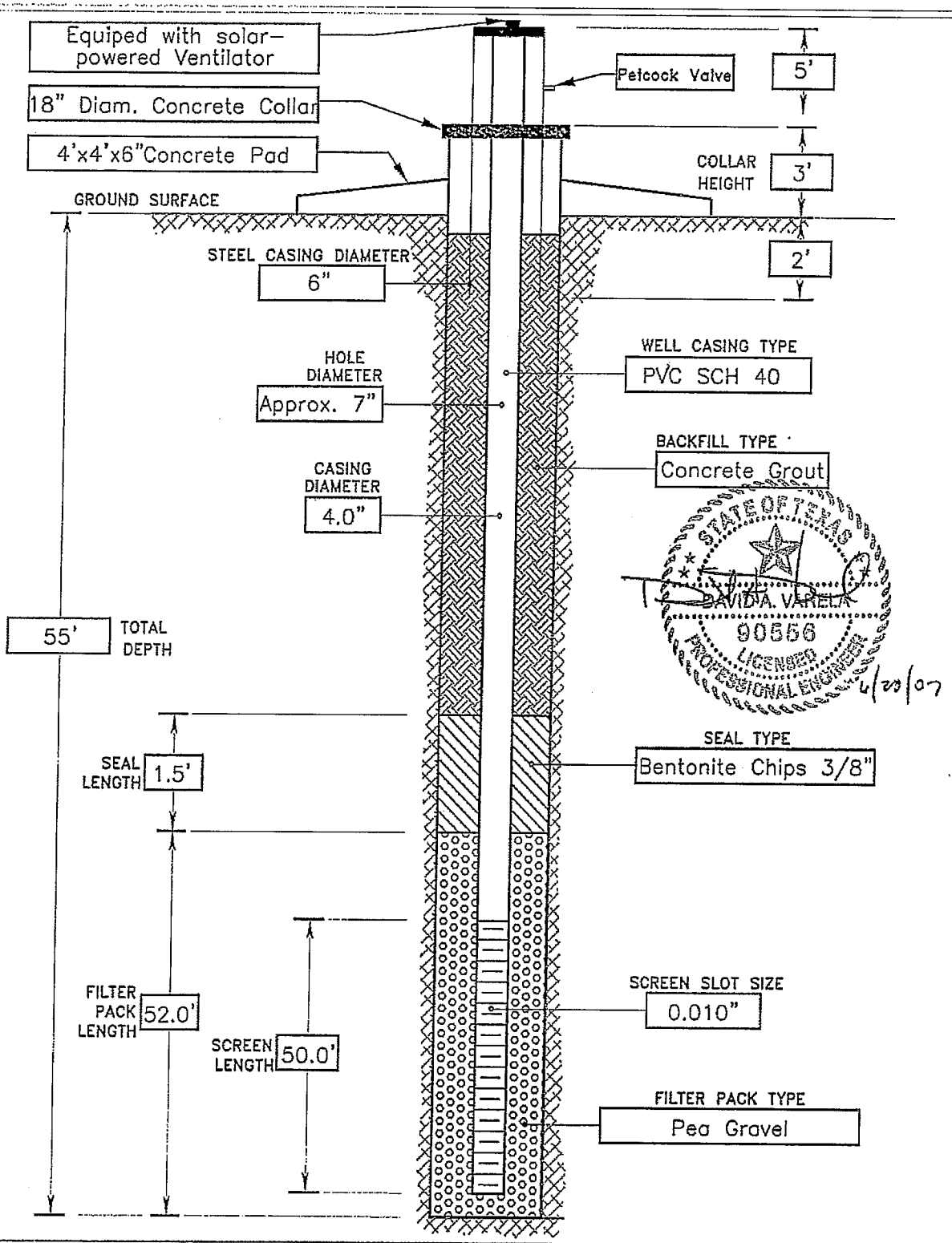
SAMPLE TYPE
A - Auger cuttings B - Block sample
S - 2" O.D. 1.38" I.D. tube sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thin-walled Shelby tube

amec

PROJECT McCombs Solid Waste Landfill WELL NUMBER: PV-5
JOB NO. 6-717-500029 DATE INSTALLED 11/9/2006

WELL COMPLETION LOG

DEVELOPMENT N/A GROUNDWATER DEPTH N/A
FORMATION OF COMPLETION N/A DRILL METHOD Hollow Stem Auger
COMMENTS: DRILLER Tierra Drilling



LOG OF TEST BORING NO. PV-6

amec

PROJECT McCombs Municipal Solid Waste Landfill
JOB NO. 6-717-500029 DATE November 10, 2006

SHEET 1 OF 1
RIG TYPE CME 75
BORING TYPE 6 5/8' Hollow Stem Auger
SURFACE ELEV. Existing
DATUM

LOGGED E. Osorio
DWG BY E. Osorio
CHEKED BY D. Hartsfield
DRILLED BY Tierra

Depth in feet	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Hand Penetrometer (tons/sq. ft.)	Moisture Content: % of Dry Weight	Unified Soil Classification	CO	LEL	H2S	REMARKS	VISUAL CLASSIFICATION
0							SM					SILTY SAND, nonplastic, light brown, dry to damp.
							SM				Note: Slight sewer odor, slight stain	SILTY SAND mixed with trash, nonplastic, light gray, damp.
5												
10								63	10	0	Note: Slight to moderate sewer odor, slight stain	
15								102	13	0	Note: tree cuttings	
20								83	10	0		
25								3	12	0		
							SC				Note: Decomposing organic matter	SANDY CLAY mixed with trash, low plasticity, black, damp.
30								250	100	0		
35								200	100	0		
40								566	100	1		

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED PROFESSIONAL GEOSCIENTIST

D. Hartsfield p.g.
6-28-07

GROUND WATER		
DEPTH	HOUR	DATE

SAMPLE TYPE
A - Auger cuttings B - Block sample
S - 2" O.D. 1.38" I.D. tube sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thin-walled Shelby tube

LOG OF TEST BORING NO. PV-6

PROJECT McCombs Municipal Solid Waste Landfill
JOB NO. 6-717-500029 DATE November 10, 2006

SHEET 2 OF 2
RIG TYPE CME 75
BORING TYPE 6 5/8" Hollow Stem Auger
SURFACE ELEV. Existing
DATUM

LOGGED E. Osorio
DWG BY E. Osorio
CHEKED BY D. Hartsfield
DRILLED BY Tierra

Depth in feet	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Hand Penetrometer (tons/sq. ft.)	Moisture Content % of Dry Weight	Unified Soil Classification	CO	LEL	H2S	REMARKS	VISUAL CLASSIFICATION
40							SC	566	100	1		CLAYEY SAND mixed with trash, low plasticity, dark gray, damp.
45								280	100	0		
50								17	100	0		
55								0	0	0	Note: contains lots of organic matter	
60												Auger Stopped at 60'
65												
70												
75												
80												

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED
PROFESSIONAL GEOSCIENTIST

P.G.
6-28-07

GROUND WATER		
DEPTH	HOUR	DATE

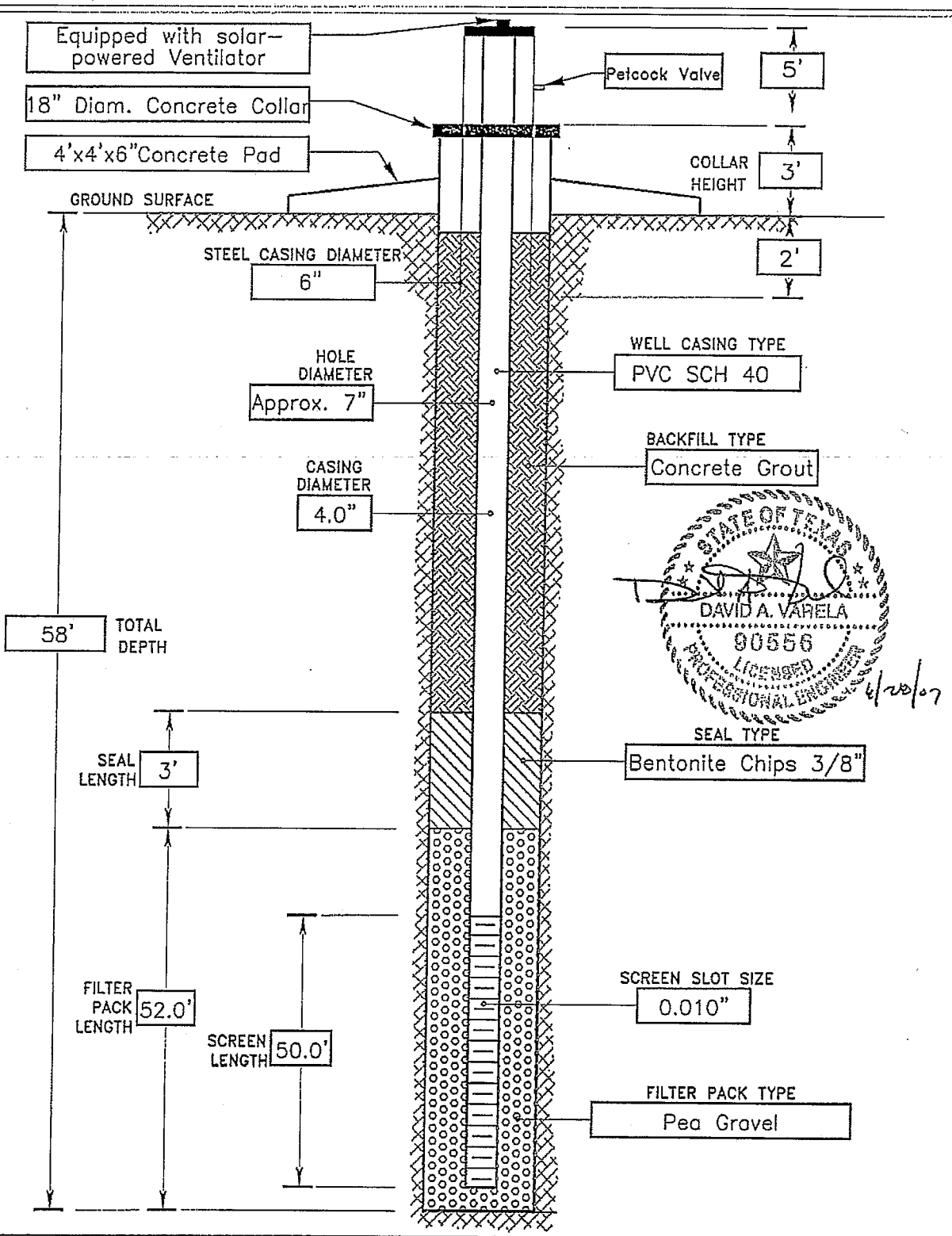
SAMPLE TYPE
A - Auger cuttings B - Block sample
S - 2" O.D. 1.35" I.D. tube sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thin-walled Shelby tube

amec

PROJECT McCombs Solid Waste Landfill WELL NUMBER: PV-6
JOB NO. 6-717-500029 DATE INSTALLED 11/10/2006

WELL COMPLETION LOG

DEVELOPMENT N/A GROUNDWATER DEPTH N/A
FORMATION OF COMPLETION N/A DRILL METHOD Hollow Stem Auger
COMMENTS: DRILLER Tierra Drilling



STATE OF TEXAS
DAVID A. VARELA
90556
LICENSED
PROFESSIONAL ENGINEER
4/20/07

LOG OF TEST BORING NO. PV-7

PROJECT McCombs Municipal Solid Waste Landfill
JOB NO. 6-717-500029 DATE November 13, 2006

SHEET 1 OF 1
RIG TYPE CME 75
BORING TYPE 6 5/8" Hollow Stem Auger
SURFACE ELEV. Existing
DATUM

LOGGED E. Osorio
DWG BY E. Osorio
CHEKED BY D. Hartsfield
DRILLED BY Tierra

Depth in feet	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Hand Penetrometer (tons/sq. ft.)	Moisture Content % of Dry Weight	Unified Soil Classification	CO	LEL	H2S	REMARKS	VISUAL CLASSIFICATION
0							SC					CLAYEY SAND, low plasticity, light brown, dry.
							SM					SILTY SAND mixed with trash, nonplastic, dark gray, dry to damp.
5								15	35	0		
							CL					GRAVELLY CLAY mixed with trash, low plasticity, black, damp.
10								0	1	0		
							CL					SANDY CLAY, low to medium plasticity, brown, damp.
15								110	10	0		
20								75	7	0		
25								58	7	0		
							SC					CLAYEY SAND mixed with trash, low plasticity, less than 1% peat content, damp.
30								8	4	0		
							CL					SANDY CLAY, low to medium plasticity, gray, damp.
35								80	33	0		
40							CL	875	100	0		GRAVELLY CLAY, low plasticity, light gray, damp.

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED
PROFESSIONAL GEOSCIENTIST

D. Hartsfield, P.G.
6-28-07

GROUND WATER		
DEPTH	HOUR	DATE

SAMPLE TYPE
A - Auger cuttings B - Block sample
S - 2" O.D. 1.38" I.D. tube sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thin-walled Shelby tube

LOG OF TEST BORING NO. PV-7

PROJECT McCombs Municipal Solid Waste Landfill
JOB NO. 6-717-500029 DATE November 13, 2006

SHEET 2 OF 2
RIG TYPE CME 75
BORING TYPE 6 5/8' Hollow Stem Auger
SURFACE ELEV. Existing
DATUM

LOGGED E. Osorio
DWG BY E. Osorio
CHEKED BY J. Barnes
DRILLED BY Tierra

Depth in feet	Graphical Log	Sample	Sample Type	Blows per foot 140 lb. 30" free-fall drop hammer	Hand Penetrometer (tons/sq. ft.)	Moisture Content % of Dry Weight	Unified Soil Classification	CO	LEL	H2S	REMARKS	VISUAL CLASSIFICATION
40							CL	875	100	0		GRAVELLY CLAY, low plasticity, light gray, damp.
45								55	27	0		
50								230	100	0		
							SP					POORLY GRADED SAND, nonplastic, gray, damp.
55								350		0		
60												Auger Stopped at 60'
65												
70												
75												
80												

STATE OF TEXAS
David L. Hartsfield
Geology
2707
LICENSED PROFESSIONAL GEOSCIENTIST

David L. Hartsfield, P.G.
6-28-07

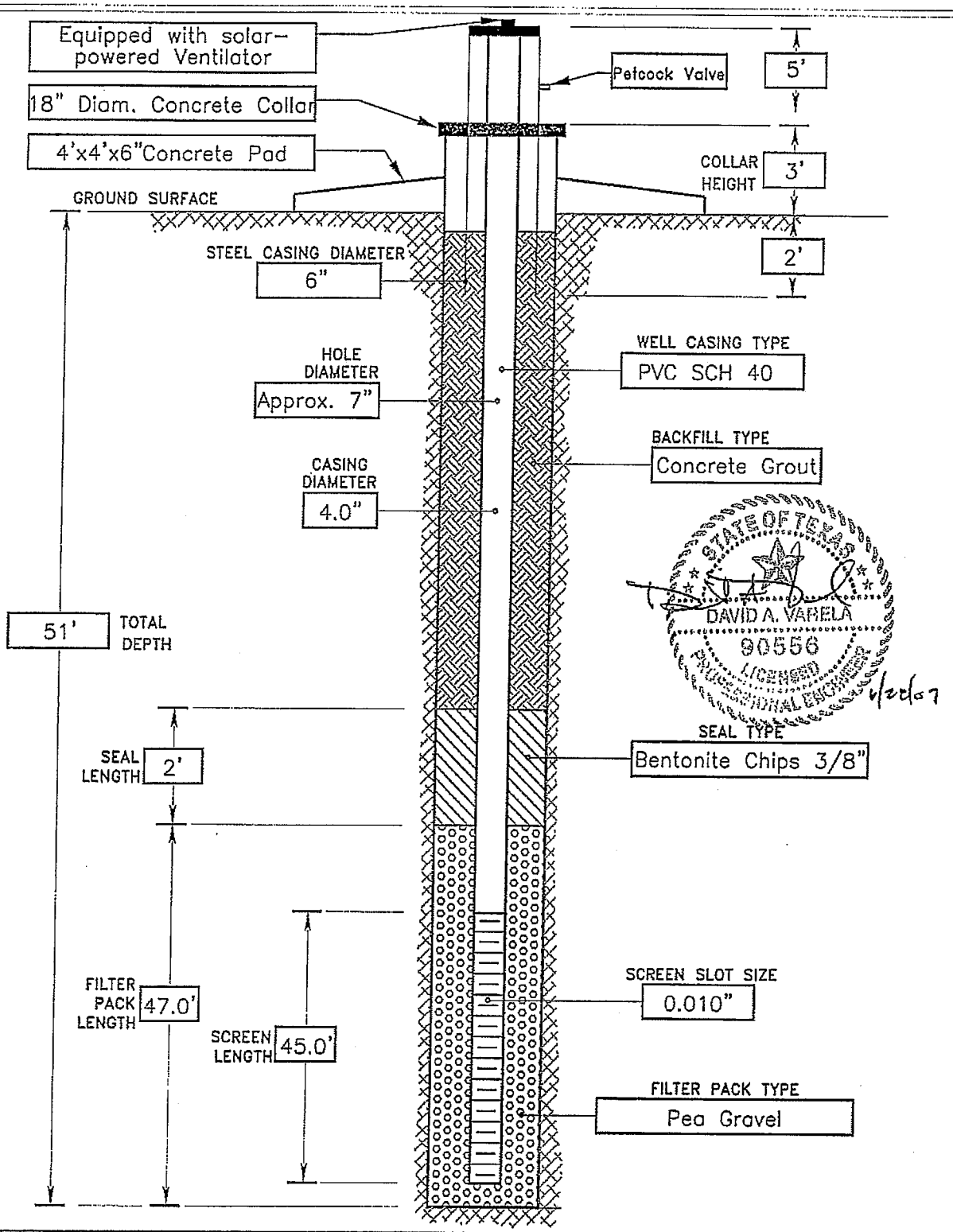
GROUND WATER		
DEPTH	HOUR	DATE

SAMPLE TYPE
A - Auger cuttings B - Block sample
S - 2" O.D. 1.38" I.D. tube sample
U - 3" O.D. 2.42" I.D. tube sample
T - 3" O.D. thin-walled Shelby tube

PROJECT McCombs Solid Waste Landfill WELL NUMBER: PV-7
JOB NO. 6-717-500029 DATE INSTALLED 11/10/2006

WELL COMPLETION LOG

DEVELOPMENT N/A GROUNDWATER DEPTH N/A
FORMATION OF COMPLETION N/A DRILL METHOD Hollow Stem Auger
COMMENTS: DRILLER Tierra Drilling



Texas Department of Licensing and Regulation

Water Well Driller/Pump Installer Program
P.O. Box 12157, Austin, Texas 78711 (512) 463-8770 FAX (512) 463-8616
Toll Free (800) 803-9202
Email: water.well@license.state.tx.us

Report of Undesirable Water or Constituents

To be completed by the Well Driller: (Type or Print)

1. Well Driller: John P. McDuffee

   Company Name: Tierra Drilling and Environmental Services, Inc.

   Address: 5309 Mace St. Suite A1 (street or RFD) El Paso (city) Texas (state) 79932 (zip)

2. Landowner or Well Owner: The City of El Paso, Texas

   Address: 2 Civic Center Plaza (street or RFD) El Paso (city) Texas (state) 79901 (zip)

   Site location; 13600 McCombs El Paso, Texas 79934

3. Location of Well: County El Paso ☒ See Attached Map

   Lat.: 106° 24.843' Long.: 31° 59.380' Grid No.: 49-05-3

   _____ Miles on _____ (Hwy or Rd) from _____ (Hwy or Rd) from _____ (Hwy or Rd)

   _____ (NE, SW, etc.) of _____ (town)

4. Reason for Report:
   - ☐ Naturally-occurring, poor-quality groundwater encountered;
   - ☒ Hydrocarbon contamination encountered (includes gasoline, diesel, etc.);
   - ☐ Hazardous material/hazardous waste contamination encountered;
   - ☐ Other; describe _____

5. Date Well Drilled: 11-08 to 11-13-2006 Type Well: Monitor Wells-PV3C, PV4,PV5,PV6B,PV7 also; Environmental Soil Borings PV3A.PV3B,PV6A

6. Has a State Well Report form relating to this well been forwarded to the Texas Department of Licensing and Regulation? ☒ Yes ☐ No Date: 12-21-2006

7. I certify that while drilling, deepening or altering the above described well, undesirable water or constituents was encountered and the landowner or well owner was informed by certified mail (recommended) that such well must be completed or plugged in accordance with 16 TAC Chapter 76.

   Date: 12-14-2006 Cert. Mail No.: 7005 1820 0001 0925 6909

   Licensed Well Driller: John P. McDuffee Lic. No.: 2994A

   Driller's Signature: John P. McDuffee

Send Original Copy by certified mail to TDLR, PO Box 12157, Austin, TX 78711
Send a Copy by certified mail (recommended) to the Landowner or Well Owner
Keep a Copy for the Well Driller's records

Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of Licensing and Regulation

Water Well Driller/Pump Installer Section
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616
Toll free (800)803-9202
Email address: water.well@license.state.tx.us Web address: www.license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

WELL REPORT

A. WELL IDENTIFICATION AND LOCATION DATA

1) OWNER

Name:	Address:	City:	State:	Zip:
The City of El Paso Texas	2 Civic Center Plaza	El Paso	Texas	79901

2) WELL LOCATION

Well # or # of wells drilled	County:	Physical Address:	City:
PV3A	El Paso	13600 McCombs	El Paso/79934

Lat.	Long.	Grid #
106° 24.843'	31° 59.380'	49-05-3

3) Type of Work
☒ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening

4) Proposed Use (check) ☐ Monitor ☒ Environmental Soil Boring ☐ Domestic ☐ Extraction ☐ Industrial ☐ Irrigation ☐ Injection ☐ Closed-Loop Geothermal ☐ De-watering ☐ Testwell ☐ Rig Supply ☐ Stock ☐ Public Supply – If Public Supply, were plans approved? ☐ Yes ☐ No

5) NT °

6) Drilling Date
Started 11 / 08 /06
Completed 11 / 08 /06

Diameter of Hole

Dia.(in)	From (ft)	To (ft)
11	Surface 0	20

7) Drilling Method (check)
☐ Driven ☐ Air Rotary ☐ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☒ Hollow Stem Auger ☐ Reverse Circulation ☐ Other

From (ft)	To (ft)	Description and color of formation material
0	2	Sand, brown, dry.
2	20	Land-fill trash.

(Use reverse side of Well Owner's copy, If necessary)

8) Borehole Completion ☐ Open Hole ☐ Straight Wall ☐ Under-reamed ☐ Gravel Packed ☒ Other Backfill
Gravel packed interval from: ____ ft. to: ____ ft. Size:

Casing, Blank Pipe, and Well Screen Data

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc Screen Mfg., if commercial	Setting (ft) From	Setting (ft) To	Gage Casing Screen
		None used			

9) Annular Seal Data: i.e. *(from 0 ft to 100 ft #sacks & material 13 cement)*
from 0 ft. to 20 ft. #sacks & material Backfill
from ____ ft. to ____ ft. #sacks & material ____
from ____ ft. to ____ ft. #sacks & material ____
Method Used Gravity Performed By Tierra
Distance to septic field or other concentrated contamination 0 ft.
Distance to Property Line 125 ft Method tape
Verified: JPM

13) Plugged ☒ Well plugged within 48 hours

Casing left in well:

From (ft)	To (ft)
N/A	

Cement/Bentonite placed in well:

From (ft)	To (ft)	# Sacks & Material used
Backfill		

10) Surface Completion (If steel cased, leave blank)
☐ Surface Slab Installed ☐ Surface Sleeve Installed ☐ Pitless Adapter Used ☒ Alternative Procedure Used Cap

14) Type Pump N/A
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other ____
Depth to pump bowls, cylinder, jet etc., ____ ft.

11) Water Level N/A
Static level ____ ft. Date: ____ / ____ / ____
Artesian Flow ____ gpm

12) Packers: N/A

Type	Depth	Type	Depth

15) Water Test N/A
Type test ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: ____ gpm with ____ ft. drawdown after ____ hrs.

16) Water Quality
Type of water N/A Depth of Strata: ____ Was a chemical analysis made? ☐ Yes ☒ No
Did you knowingly penetrate a strata which contains undesirable constituents? ☒ Yes ☐ No If yes, Continue:
Check One: ☐ Naturally poor-quality groundwater – type ____ ☒ Hydrocarbons (i.e. gas, oil, etc.) ☐ Hazardous material/waste contamination encountered ☐ Other (describe) ____

☒ *I certify that while drilling, deepening, or otherwise altering the above described well, undesirable water or constituents was encountered and the landowner was informed that such well must be completed or plugged in such a manner as to avoid injury or pollution.*

By signing this well report, I certify that I drilled or supervised the drilling of this well and that each and all of the statements herein are true and correct.

Company & Individual's Name: (type or print)	Tierra Drilling & Env.Svc.Inc.	Lic. No.:	2994A
Address: 5309 Mace St. Ste.A1	City: El Paso	State: Texas	Zip 79932

Signature: Licensed Driller/Pump Installer	Date	Signature: Apprentice	Apprentice Reg. Number
John P. McDuffee	12 / 08 /06		

TDLR FORM 001WWD / 2-06 TDLR (Original) Landowner (copy) Driller/Pump Installer (copy)

Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of Licensing and Regulation

Water Well Driller/Pump Installer Section
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616
Toll free (800)803-9202
Email address: water.well@license.state.tx.us Web address: www.license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

WELL REPORT

A. WELL IDENTIFICATION AND LOCATION DATA

1) OWNER

Name:	Address:	City:	State:	Zip:
The City of El Paso Texas	2 Civic Center Plaza	El Paso	Texas	79901

2) WELL LOCATION

Well # or # of wells drilled	County:	Physical Address:	City:
PV3B	El Paso	13600 McCombs	El Paso/79934

Lat.	Long.	Grid #
106° 24.843'	31° 59.380'	49-05-3

3) Type of Work
☒ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening

4) Proposed Use (check) ☐ Monitor ☒ Environmental Soil Boring ☐ Domestic ☐ Extraction ☐ Industrial ☐ Irrigation ☐ Injection ☐ Closed-Loop Geothermal ☐ De-watering ☐ Testwell ☐ Rig Supply ☐ Stock ☐ Public Supply – If Public Supply, were plans approved? ☐ Yes ☐ No

5) NT

6) Drilling Date
Started 11 / 08 / 06
Completed 11 / 08 / 06

Diameter of Hole

Dia.(in)	From (ft)	To (ft)
7	Surface 0	25

7) Drilling Method (check)
☐ Driven ☐ Air Rotary ☐ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☒ Hollow Stem Auger ☐ Reverse Circulation ☐ Other

From (ft)	To (ft)	Description and color of formation material
0	2	Sand, brown, dry.
2	20	Land-fill trash.

(Use reverse side of Well Owner's copy, If necessary)

8) Borehole Completion ☐ Open Hole ☐ Straight Wall ☐ Under-reamed ☐ Gravel Packed ☒ Other Backfill
Gravel packed interval from: _____ ft. to: _____ ft. Size:

Casing, Blank Pipe, and Well Screen Data

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc Screen Mfg., if commercial	Setting (ft) From	Setting (ft) To	Gage Casing Screen
		N/A			

9) Annular Seal Data: i.e. *(from 0 ft to 100 ft #sacks & material 13 cement)*
from 0 ft. to 25 ft. #sacks & material Backfill
from _____ ft. to _____ ft. #sacks & material _____
from _____ ft. to _____ ft. #sacks & material _____
Method Used Gravity Performed By Tierra
Distance to septic field or other concentrated contamination 0 ft.
Distance to Property Line 125 ft Method Tape
Verified: JPM

13) Plugged XX Well plugged within 48 hours
Casing left in well: Cement/Bentonite placed in well:

From (ft)	To (ft)	From (ft)	To (ft)	# Sacks & Material used
N/A		Backfill		

10) Surface Completion (If steel cased, leave blank)
☐ Surface Slab Installed ☐ Surface Sleeve Installed ☐ Pitless Adapter Used ☒ Alternative Procedure Used Cap

14) Type Pump N/A
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet etc., _____ ft.

11) Water Level N/A
Static level _____ ft. Date: / /
Artesian Flow _____ gpm

12) Packers: N/A

Type	Depth	Type	Depth

15) Water Test N/A
Type test ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

16) Water Quality
Type of water N/A Depth of Strata: _____ Was a chemical analysis made? ☐ Yes ☒ No
Did you knowingly penetrate a strata which contains undesirable constituents? ☒ Yes ☐ No If yes, Continue:
Check One: ☐ Naturally poor-quality groundwater – type _____ XX Hydrocarbons (i.e. gas, oil, etc.)
☐ Hazardous material/waste contamination encountered ☐ Other (describe) _____

☒ *I certify that while drilling, deepening, or otherwise altering the above described well, undesirable water or constituents was encountered and the landowner was informed that such well must be completed or plugged in such a manner as to avoid injury or pollution.*

By signing this well report, I certify that I drilled or supervised the drilling of this well and that each and all of the statements herein are true and correct.

Company & Individual's Name: (type or print)		Lic. No.:
	Tierra Drilling & Env.Svc.Inc.	2994A

Address:	City:	State:	Zip
5309 Mace St. Ste.A1	El Paso	Texas	79932

Signature: Licensed Driller/Pump Installer	Date	Signature: Apprentice	Apprentice Reg. Number
John P. McDaffee	12 / 08 / 06		

Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of Licensing and Regulation

Water Well Driller/Pump Installer Section
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616
Toll free (800)803-9202
Email address: water.well@license.state.tx.us Web address: www.license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

WELL REPORT

A. WELL IDENTIFICATION AND LOCATION DATA

1) OWNER

Name:	Address:	City:	State:	Zip:
The City of El Paso Texas	2 Civic Center Plaza	El Paso	Texas	79901

2) WELL LOCATION

Well # or # of wells drilled	County:	Physical Address:	City:
PV3C	El Paso	13600 McCombs	El Paso/79934

3) Type of Work	Lat.	Long.	Grid #
☒ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening	106° 24.843'	31° 59.380'	49-05-3

4) Proposed Use (check) ☒ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Extraction ☐ Industrial ☐ Irrigation ☐ Injection ☐ Closed-Loop Geothermal ☐ De-watering ☐ Testwell ☐ Rig Supply ☐ Stock ☐ Public Supply – If Public Supply, were plans approved? ☐ Yes ☐ No

5) NT 0

6) Drilling Date
Started 11/ 13 /06
Completed 11/ 15 /06

Diameter of Hole

Dia.(in)	From (ft)	To (ft)
	Surface	
7	0	60

7) Drilling Method (check)
☐ Driven ☐ Air Rotary ☐ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☒ Hollow Stem Auger ☐ Reverse Circulation ☐ Other

From (ft)	To (ft)	Description and color of formation material
0	2	Sand, brown, dry.
2	60	Land-fill trash.

(Use reverse side of Well Owner's copy, If necessary)

8) Borehole Completion ☐ Open Hole ☐ Straight Wall ☐ Under-reamed ☒ Gravel Packed ☐ Other
Gravel packed interval from: 6 ft. to: 60 ft. Size: 3/8"

Casing, Blank Pipe, and Well Screen Data

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc Screen Mfg., if commercial	Setting (ft) From	Setting (ft) To	Gage Casing Screen
4	New	PVC Casing,	+8	8	Blk.
4	New	PVC Screen, MFG.	8	58	0.01

9) Annular Seal Data: i.e. (from 0 ft to 100 ft #sacks & material 13 cement)
from 0 ft. to 3 ft. #sacks & material 1sk/cmt
from 3 ft. to 6 ft. #sacks & material 2sk/Bent
from ____ ft. to ____ ft. #sacks & material chip
Method Used poured Performed By Tierra
Distance to septic field or other concentrated contamination 0 ft.
Distance to Property Line 125 ft Method Tape
Verified: JPM

13) Plugged ☐ Well plugged within 48 hours N/A

Casing left in well: From (ft)	To (ft)	Cement/Bentonite placed in well: From (ft)	To (ft)	# Sacks & Material used

10) Surface Completion (If steel cased, leave blank)
☐ Surface Slab Installed ☒ Surface Sleeve Installed ☐ Pitless Adapter Used ☐ Alternative Procedure Used

14) Type Pump N/A
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other
Depth to pump bowls, cylinder, jet etc.. ____ ft.

11) Water Level N/A
Static level ____ ft. Date: / /
Artesian Flow ____ gpm

12) Packers: N/A

Type	Depth	Type	Depth

15) Water Test N/A
Type test ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

16) Water Quality
Type of water N/A Depth of Strata: ____ Was a chemical analysis made? ☐ Yes ☒ No
Did you knowingly penetrate a strata which contains undesirable constituents? ☒ Yes ☐ No If yes, Continue:
Check One: ☐ Naturally poor-quality groundwater – type ____ ☒ Hydrocarbons (i.e. gas, oil, etc.) ☐ Hazardous material/waste contamination encountered ☐ Other (describe) ____

☒ *I certify that while drilling, deepening, or otherwise altering the above described well, undesirable water or constituents was encountered and the landowner was informed that such well must be completed or plugged in such a manner as to avoid injury or pollution.*

By signing this well report, I certify that I drilled or supervised the drilling of this well and that each and all of the statements herein are true and correct.

Company & Individual's Name: (type or print)	Lic. No.:
Tierra Drilling & Env.Svc.Inc.	2994A

Address:	City:	State:	Zip
5309 Mace St. Ste.A1	El Paso	Texas	79932

Signature:	Date	Signature:	
John P. McDuffee	12/08/06		
Licensed Driller/Pump Installer		Apprentice	Apprentice Reg. Number

TDLR FORM 001WWD / 2-06 TDLR (Original) Landowner (copy) Driller/Pump Installer (copy)

Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of Licensing and Regulation

Water Well Driller/Pump Installer Section
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616
Toll free (800)803-9202
Email address: water.well@license.state.tx.us Web address: www.license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

WELL REPORT

A. WELL IDENTIFICATION AND LOCATION DATA

1) OWNER

Name:	Address:	City:	State:	Zip:
The City of El Paso Texas	2 Civic Center Plaza	El Paso	Texas	79901

2) WELL LOCATION

Well # or # of wells drilled	County:	Physical Address:	City:
PV4	El Paso	13600 McCombs	El Paso/79934

Lat.	Long.	Grid #
106° 24.843'	31° 59.380'	49-05-3

3) Type of Work
☒ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening

4) Proposed Use (check) ☒ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Extraction ☐ Industrial ☐ Irrigation ☐ Injection ☐ Closed-Loop Geothermal ☐ De-watering ☐ Testwell ☐ Rig Supply ☐ Stock ☐ Public Supply – If Public Supply, were plans approved? ☐ Yes ☐ No

5) NT 0

6) Drilling Date
Started 11 / 09 / 06
Completed 11 / 15 / 06

Diameter of Hole

Dia.(in)	From (ft)	To (ft)
7	Surface 0	60

7) Drilling Method (check)
☐ Driven ☐ Air Rotary ☐ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☒ Hollow Stem Auger ☐ Reverse Circulation ☐ Other

From (ft)	To (ft)	Description and color of formation material
0	2	Sand, brown, dry.
2	60	Land-fill trash.

(Use reverse side of Well Owner's copy, If necessary)

8) Borehole Completion ☐ Open Hole ☐ Straight Wall ☐ Under-reamed ☒ Gravel Packed ☐ Other
Gravel packed interval from: 5 ft. to: 57 ft. Size: 3/8"

Casing, Blank Pipe, and Well Screen Data

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc Screen Mfg., if commercial	Setting (ft) From	Setting (ft) To	Gage Casing Screen
4	New	PVC Casing,	+8	7	Blk.
4	New	PVC Screen, MFG.	7	57	0.01

9) Annular Seal Data: i.e. (from 0 ft to 100 ft #sacks & material 1 cement)
from 0 ft. to 3 ft. #sacks & material 1sk/cmt
from 3 ft. to 5 ft. #sacks & material 2sk/Bent. chip
from ____ ft. to ____ ft. #sacks & material ____
Method Used poured Performed By Tierra
Distance to septic field or other concentrated contamination 0 ft.
Distance to Property Line 125 ft Method Tape
Verified: JPM

13) Plugged ☐ Well plugged within 48 hours N/A
Casing left in well: Cement/Bentonite placed in well:

From (ft)	To (ft)	From (ft)	To (ft)	# Sacks & Material used

10) Surface Completion (If steel cased, leave blank)
☐ Surface Slab Installed ☒ Surface Sleeve Installed ☐ Pitless Adapter Used ☐ Alternative Procedure Used

14) Type Pump N/A
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other
Depth to pump bowls, cylinder, jet etc., ____ ft.

11) Water Level N/A
Static level ____ ft. Date: / /
Artesian Flow ____ gpm

12) Packers: N/A

Type	Depth	Type	Depth

15) Water Test N/A
Type test ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: ____ gpm with ____ ft. drawdown after ____ hrs.

16) Water Quality
Type of water N/A Depth of Strata: ____ Was a chemical analysis made? ☐ Yes ☒ No
Did you knowingly penetrate a strata which contains undesirable constituents? ☒ Yes ☐ No If yes, Continue:
Check One: ☐ Naturally poor-quality groundwater – type ____ ☒ Hydrocarbons (i.e. gas, oil, etc.) ☐ Hazardous material/waste contamination encountered ☐ Other (describe) ____

☒ *I certify that while drilling, deepening, or otherwise altering the above described well, undesirable water or constituents was encountered and the landowner was informed that such well must be completed or plugged in such a manner as to avoid injury or pollution.*

By signing this well report, I certify that I drilled or supervised the drilling of this well and that each and all of the statements herein are true and correct.

Company & Individual's Name: (type or print)	Tierra Drilling & Env.Svc.Inc.	Lic. No.:	2994A
Address: 5309 Mace St. Ste.A1	City: El Paso	State: Texas	Zip 79932
Signature: John D. McDuff Jr.	12/08/06	Signature:	
Licensed Driller/Pump Installer	Date	Apprentice	Apprentice Reg. Number

Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of Licensing and Regulation

Water Well Driller/Pump Installer Section
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616
Toll free (800)803-9202
Email address: water.well@license.state.tx.us Web address: www.license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

WELL REPORT

A. WELL IDENTIFICATION AND LOCATION DATA

1) OWNER

Name:	Address:	City:	State:	Zip:
The City of El Paso Texas	2 Civic Center Plaza	El Paso	Texas	79901

2) WELL LOCATION

Well # or # of wells drilled	County:	Physical Address:	City:
PV5	El Paso	13600 McCombs	El Paso/79934

3) Type of Work	Lat.	Long.	Grid #
☒ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening	106° 24.843'	31° 59.380'	49-05-3

4) Proposed Use (check) ☒ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Extraction ☐ Industrial ☐ Irrigation ☐ Injection ☐ Closed-Loop Geothermal ☐ De-watering ☐ Testwell ☐ Rig Supply ☐ Stock ☐ Public Supply – If Public Supply, were plans approved? ☐ Yes ☐ No

5) NT 0

6) Drilling Date
Started 11/ 09 /06
Completed 11/ 15 /06

Diameter of Hole

Dia.(in)	From (ft)	To (ft)
	Surface	
7	0	60

7) Drilling Method (check)
☐ Driven ☐ Air Rotary ☐ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☒ Hollow Stem Auger ☐ Reverse Circulation ☐ Other

From (ft)	To (ft)	Description and color of formation material
0	2	Sand, brown, dry.
2	60	Land-fill trash.

(Use reverse side of Well Owner's copy, if necessary)

8) Borehole Completion ☐ Open Hole ☐ Straight Wall ☐ Under-reamed ☒ Gravel Packed ☐ Other
Gravel packed interval from: 3 ft. to: 55 ft. Size: 3/8"

Casing, Blank Pipe, and Well Screen Data

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc Screen Mfg., if commercial	Setting (ft) From	Setting (ft) To	Gage Casing Screen
4	New	PVC Casing,	±8	5	Blk.
4	New	PVC Screen, MFG.	5	55	0.01

9) Annular Seal Data: i.e. (from 0 ft to 100 ft #sacks & material 13 cement)
from 0 ft. to 1 ft. #sacks & material 1sk/cmt
from 1 ft. to 3 ft. #sacks & material 2sk/Bent
from ____ ft. to ____ ft. #sacks & material chip
Method Used poured Performed By Tierra
Distance to septic field or other concentrated contamination 0 ft.
Distance to Property Line 125 ft Method Tape
Verified: JPM

13) Plugged ☐ Well plugged within 48 hours N/A
Casing left in well: Cement/Bentonite placed in well:

From (ft)	To (ft)	From (ft)	To (ft)	# Sacks & Material used

10) Surface Completion (If steel cased, leave blank)
☐ Surface Slab Installed ☒ Surface Sleeve Installed ☐ Pitless Adapter Used ☐ Alternative Procedure Used

14) Type Pump N/A
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other
Depth to pump bowls, cylinder, jet etc., ____ ft.

11) Water Level N/A
Static level ____ ft. Date: / /
Artesian Flow ____ gpm

12) Packers: N/A

Type	Depth	Type	Depth

15) Water Test N/A
Type test ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

16) Water Quality
Type of water N/A Depth of Strata: ____ Was a chemical analysis made? ☐ Yes ☒ No
Did you knowingly penetrate a strata which contains undesirable constituents? ☒ Yes ☐ No If yes, Continue:
Check One: ☐ Naturally poor-quality groundwater – type ____ ☒ Hydrocarbons (i.e. gas, oil, etc.) ☐ Hazardous material/waste contamination encountered ☐ Other (describe) ____

☒ *I certify that while drilling, deepening, or otherwise altering the above described well, undesirable water or constituents was encountered and the landowner was informed that such well must be completed or plugged in such a manner as to avoid injury or pollution.*

By signing this well report, I certify that I drilled or supervised the drilling of this well and that each and all of the statements herein are true and correct.

Company & Individual's Name: (type or print)		Lic. No.:
	Tierra Drilling & Env.Svc.Inc.	2994A

Address:	City:	State:	Zip
5309 Mace St. Ste.A1	El Paso	Texas	79932

Signature: John P. McDuffee	12/ 08/06	Signature:	
Licensed Driller/Pump Installer	Date	Apprentice	Apprentice Reg. Number

TDLR FORM 001WWD / 2-06 TDLR (Original) Landowner (copy) Driller/Pump Installer (copy)

Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of Licensing and Regulation

Water Well Driller/Pump Installer Section
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616
Toll free (800)803-9202
Email address: water.well@license.state.tx.us Web address: www.license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

WELL REPORT

A. WELL IDENTIFICATION AND LOCATION DATA

1) OWNER

Name:	Address:	City:	State:	Zip:
The City of El Paso Texas	2 Civic Center Plaza	El Paso	Texas	79901

2) WELL LOCATION

Well # or # of wells drilled	County:	Physical Address:	City:
PV6A	El Paso	13600 McCombs	El Paso/ 79934

3) Type of Work	Lat.	Long.	Grid #
☒ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening	106° 24.843'	31° 59.380'	49-05-3

4) Proposed Use (check) ☐ Monitor ☒ Environmental Soil Boring ☐ Domestic ☐ Extraction ☐ Industrial ☐ Irrigation ☐ Injection ☐ Closed-Loop Geothermal ☐ De-watering ☐ Testwell ☐ Rig Supply ☐ Stock ☐ Public Supply – If Public Supply, were plans approved? ☐ Yes ☐ No

5) NT

6) Drilling Date
Started 11 / 10 / 06
Completed 11 / 10 / 06

Diameter of Hole

Dia.(in)	From (ft)	To (ft)
7	Surface 0	40

7) Drilling Method (check)
☐ Driven ☐ Air Rotary ☐ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☒ Hollow Stem Auger ☐ Reverse Circulation ☐ Other

From (ft)	To (ft)	Description and color of formation material
0	2	Sand, brown, dry.
2	40	Land-fill trash.

(Use reverse side of Well Owner's copy, If necessary)

8) Borehole Completion ☐ Open Hole ☐ Straight Wall ☐ Under-reamed ☐ Gravel Packed ☒ Other Backfill
Gravel packed interval from: _____ ft. to: _____ ft. Size:

Casing, Blank Pipe, and Well Screen Data

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc Screen Mfg., if commercial	Setting (ft) From	Setting (ft) To	Gage Casing Screen
		None used			

9) Annular Seal Data: i.e. (from 0 ft to 100 ft #sacks & material [3 cement)
from 0 ft. to 40 ft. #sacks & material Backfill
from _____ ft. to _____ ft. #sacks & material _____
from _____ ft. to _____ ft. #sacks & material _____
Method Used Gravity Performed By Tierra
Distance to septic field or other concentrated contamination 0 ft.
Distance to Property Line 125 ft Method tape
Verified: JPM

13) Plugged ☒ Well plugged within 48 hours

Casing left in well: From (ft)	Casing left in well: To (ft)	Cement/Bentonite placed in well: From (ft)	Cement/Bentonite placed in well: To (ft)	# Sacks & Material used
N/A		Backfill		

10) Surface Completion (If steel cased, leave blank)
☐ Surface Slab Installed ☐ Surface Sleeve Installed ☐ Pitless Adapter Used ☒ Alternative Procedure Used Cap

14) Type Pump N/A
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other _____
Depth to pump bowls, cylinder, jet etc.. _____ ft.

11) Water Level N/A
Static level _____ ft. Date: / /
Artesian Flow _____ gpm

12) Packers: N/A

Type	Depth	Type	Depth

15) Water Test N/A
Type test ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

16) Water Quality
Type of water N/A Depth of Strata: _____ Was a chemical analysis made? ☐ Yes ☒ No
Did you knowingly penetrate a strata which contains undesirable constituents? ☒ Yes ☐ No If yes, Continue:
Check One: ☐ Naturally poor-quality groundwater – type _____ ☒ Hydrocarbons (i.e. gas, oil, etc.) ☐ Hazardous material/waste contamination encountered ☐ Other (describe) _____

☒ *I certify that while drilling, deepening, or otherwise altering the above described well, undesirable water or constituents was encountered and the landowner was informed that such well must be completed or plugged in such a manner as to avoid injury or pollution.*

By signing this well report, I certify that I drilled or supervised the drilling of this well and that each and all of the statements herein are true and correct.

Company & Individual's Name: (type or print)		Lic. No.:
	Tierra Drilling & Env.Svc.Inc.	2994A

Address:	City:	State:	Zip
5309 Mace St. Ste.A1	El Paso	Texas	79932

Signature: John P. McDuffee (Licensed Driller/Pump Installer)	12 / 08 / 06 (Date)	Signature: (Apprentice)	Apprentice Reg. Number

TDLR FORM 001WWD / 2-06 TDLR (Original) Landowner (copy) Driller/Pump Installer (copy)

Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of Licensing and Regulation

Water Well Driller/Pump Installer Section
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616
Toll free (800)803-9202
Email address: water.well@license.state.tx.us Web address: www.license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

WELL REPORT

A. WELL IDENTIFICATION AND LOCATION DATA

1) OWNER

Name:	Address:	City:	State:	Zip:
The City of El Paso Texas	2 Civic Center Plaza	El Paso	Texas	79901

2) WELL LOCATION

Well # or # of wells drilled	County:	Physical Address:	City:
PV6B	El Paso	13600 McCombs	El Paso/79934

Lat.	Long.	Grid #
106° 24.843'	31° 59.380'	49-05-3

3) Type of Work
☒ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening

4) Proposed Use (check) ☒ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Extraction ☐ Industrial ☐ Irrigation ☐ Injection ☐ Closed-Loop Geothermal ☐ De-watering ☐ Testwell ☐ Rig Supply ☐ Stock ☐ Public Supply – If Public Supply, were plans approved? ☐ Yes ☐ No

5) NT 0

6) Drilling Date
Started 11/ 10 /06
Completed 11/ 15 /06

Diameter of Hole

Dia.(in)	From (ft)	To (ft)
	Surface	
7	0	60

7) Drilling Method (check)
☐ Driven ☐ Air Rotary ☐ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☒ Hollow Stem Auger ☐ Reverse Circulation ☐ Other

From (ft)	To (ft)	Description and color of formation material
0	2	Sand, brown, dry.
2	60	Land-fill trash.

(Use reverse side of Well Owner's copy, If necessary)

8) Borehole Completion ☐ Open Hole ☐ Straight Wall ☐ Under-reamed ☒ Gravel Packed ☐ Other
Gravel packed interval from: 6 ft. to: 58 ft. Size: 3/8"

Casing, Blank Pipe, and Well Screen Data

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc Screen Mfg., if commercial	Setting (ft) From	Setting (ft) To	Gage Casing Screen
4	New	PVC Casing,	±8	8	Blk.
4	New	PVC Screen, MFG.	8	58	0.01

9) Annular Seal Data: i.e. (from 0 ft to 102 ft #sacks & material 13 cement)
from 0 ft. to 3 ft. #sacks & material 1sk/cmt
from 3 ft. to 6 ft. #sacks & material 2sk/Bent
from ____ ft. to ____ ft. #sacks & material chip
Method Used poured Performed By Tierra
Distance to septic field or other concentrated contamination 0 ft.
Distance to Property Line 125 ft Method Tape
Verified: JPM

13) Plugged ☐ Well plugged within 48 hours N/A
Casing left in well: Cement/Bentonite placed in well:

From (ft)	To (ft)	From (ft)	To (ft)	# Sacks & Material used

10) Surface Completion (If steel cased, leave blank)
☐ Surface Slab Installed ☒ Surface Sleeve Installed ☐ Pitless Adapter Used ☐ Alternative Procedure Used

14) Type Pump N/A
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other
Depth to pump bowls, cylinder, jet etc., ____ ft.

11) Water Level N/A
Static level ____ ft. Date: / /
Artesian Flow ____ gpm

12) Packers: N/A

Type	Depth	Type	Depth

15) Water Test N/A
Type test ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: gpm with ft. drawdown after hrs.

16) Water Quality
Type of water N/A Depth of Strata: ____ Was a chemical analysis made? ☐ Yes ☒ No
Did you knowingly penetrate a strata which contains undesirable constituents? ☒ Yes ☐ No If yes, Continue:
Check One: ☐ Naturally poor-quality groundwater – type ____ ☒ Hydrocarbons (i.e. gas, oil, etc.) ☐ Hazardous material/waste contamination encountered ☐ Other (describe) ____

☒ *I certify that while drilling, deepening, or otherwise altering the above described well, undesirable water or constituents was encountered and the landowner was informed that such well must be completed or plugged in such a manner as to avoid injury or pollution.*

By signing this well report, I certify that I drilled or supervised the drilling of this well and that each and all of the statements herein are true and correct.

Company & Individual's Name: (type or print)		Lic. No.:
	Tierra Drilling & Env.Svc.Inc.	2994A

Address:	City:	State:	Zip
5309 Mace St. Ste.A1	El Paso	Texas	79932

Signature: John P. McDuffee	12/08/06	Signature:	
Licensed Driller/Pump Installer	Date	Apprentice	Apprentice Reg. Number

Attention Owner: Confidentiality Privilege Notice on reverse side of owner's copy.

Texas Department of Licensing and Regulation

Water Well Driller/Pump Installer Section
P.O. Box 12157 Austin, Texas 78711 (512)463-7880 FAX (512)463-8616
Toll free (800)803-9202
Email address: water.well@license.state.tx.us Web address: www.license.state.tx.us

This form must be completed and filed with the department and owner within 60 days upon completion of the well.

WELL REPORT

A. WELL IDENTIFICATION AND LOCATION DATA

1) OWNER

Name:	Address:	City:	State:	Zip:
The City of El Paso Texas	2 Civic Center Plaza	El Paso	Texas	79901

2) WELL LOCATION

Well # or # of wells drilled	County:	Physical Address:	City:
PV7	El Paso	13600 McCombs	El Paso/79934

Lat.	Long.	Grid #
106° 24.843'	31° 59.380'	49-05-3

3) Type of Work
☒ New Well ☐ Reconditioning ☐ Replacement ☐ Deepening

4) Proposed Use (check) ☒ Monitor ☐ Environmental Soil Boring ☐ Domestic ☐ Extraction ☐ Industrial ☐ Irrigation ☐ Injection ☐ Closed-Loop Geothermal ☐ De-watering ☐ Testwell ☐ Rig Supply ☐ Stock ☐ Public Supply – If Public Supply, were plans approved? ☐ Yes ☐ No

5) NT

0

6) Drilling Date
Started 11/ 13 /06
Completed 11/ 15 /06

Diameter of Hole

Dia.(in)	From (ft)	To (ft)
7	Surface 0	60

7) Drilling Method (check)
☐ Driven ☐ Air Rotary ☐ Mud Rotary ☐ Bored ☐ Air Hammer ☐ Cable Tool ☐ Jetted ☒ Hollow Stem Auger ☐ Reverse Circulation ☐ Other

From (ft)	To (ft)	Description and color of formation material
0	2	Sand, brown, dry.
2	51	Land-fill trash.
51	60	Sand, brown, dry.

(Use reverse side of Well Owner's copy, if necessary)

8) Borehole Completion ☐ Open Hole ☐ Straight Wall ☐ Under-reamed ☒ Gravel Packed ☐ Other
Gravel packed interval from: 4 ft. to: 51 ft. Size: 3/8"

Casing, Blank Pipe, and Well Screen Data

Dia. (in.)	New Or Used	Steel, Plastic, etc. Perf., Slotted, etc Screen Mfg., if commercial	Setting (ft) From	Setting (ft) To	Gage Casing Screen
4	New	PVC Casing,	+8	6	Blk.
4	New	PVC Screen, MFG.	6	51	0.01

9) Annular Seal Data: i.e. *(from 0 ft to 100 ft #sacks & material 13 cement)*
from 0 ft. to 1 ft. #sacks & material 1sk/cmt
from 1 ft. to 4 ft. #sacks & material 2sk/Bent
from ____ ft. to ____ ft. #sacks & material chip
Method Used poured Performed By Tierra
Distance to septic field or other concentrated contamination 0 ft.
Distance to Property Line 125ft Method Tape
Verified: JPM

13) Plugged ☐ Well plugged within 48 hours N/A

Casing left in well: / Cement/Bentonite placed in well:

From (ft)	To (ft)	From (ft)	To (ft)	# Sacks & Material used

10) Surface Completion (If steel cased, leave blank)
☐ Surface Slab Installed ☒ Surface Sleeve Installed ☐ Pitless Adapter Used ☐ Alternative Procedure Used

14) Type Pump N/A
☐ Turbine ☐ Jet ☐ Submersible ☐ Cylinder ☐ Other
Depth to pump bowls, cylinder, jet etc., ____ ft.

11) Water Level N/A
Static level ____ ft. Date: / /
Artesian Flow ____ gpm

12) Packers: N/A

Type	Depth	Type	Depth

15) Water Test N/A
Type test ☐ Pump ☐ Bailer ☐ Jetted ☐ Estimated
Yield: ____ gpm with ____ ft. drawdown after ____ hrs.

16) Water Quality
Type of water N/A Depth of Strata: ____ Was a chemical analysis made? ☐ Yes ☒ No
Did you knowingly penetrate a strata which contains undesirable constituents? ☒ Yes ☐ No If yes, Continue:
Check One: ☐ Naturally poor-quality groundwater – type ____ ☒ Hydrocarbons (i.e. gas, oil, etc.) ☐ Hazardous material/waste contamination encountered ☐ Other (describe) ____

☒ *I certify that while drilling, deepening, or otherwise altering the above described well, undesirable water or constituents was encountered and the landowner was informed that such well must be completed or plugged in such a manner as to avoid injury or pollution.*

By signing this well report, I certify that I drilled or supervised the drilling of this well and that each and all of the statements herein are true and correct.

Company & Individual's Name: (type or print)	Tierra Drilling & Env.Svc.Inc.	Lic. No.:	2994A
Address: 5309 Mace St. Ste.A1	City: El Paso	State: Texas	Zip 79932
Signature: John P McDuffee (Licensed Driller/Pump Installer)	12/08/06 (Date)	Signature: (Apprentice)	(Apprentice Reg. Number)

TDLR FORM 001 WWD / 2-06 *TDLR (Original)* *Landowner (copy)* *Driller/Pump Installer (copy)*

PART III SITE DEVELOPMENT PLAN
ATTACHMENT 14 – LGMP

APPENDIX 14-G

LANDFILL GAS MIGRATION CONTROL SYSTEM (GMCS) ALONG WESTERN PERIMETER

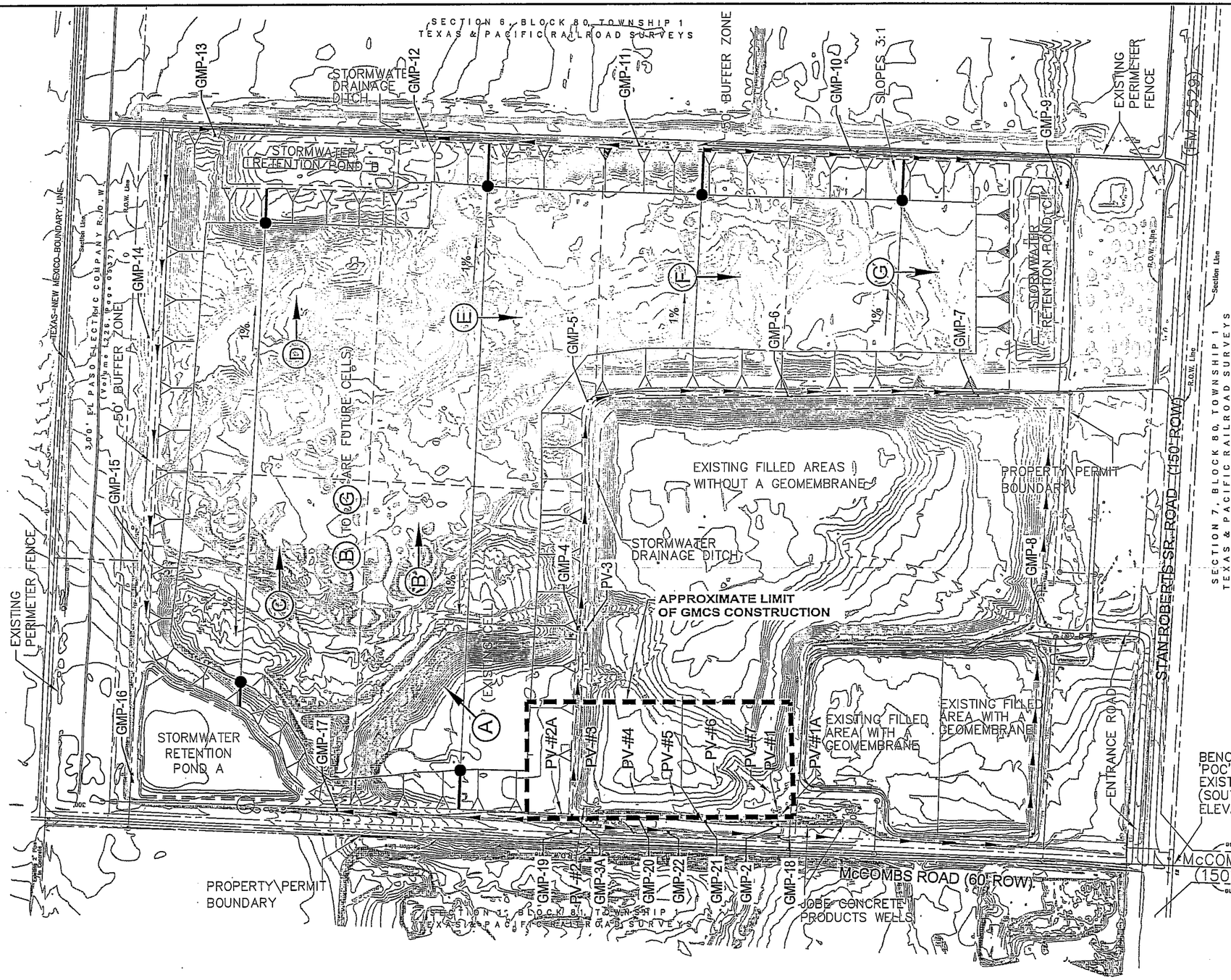
(Added April 3, 2009)

PART III SITE DEVELOPMENT PLAN
ATTACHMENT 14 – LGMP

APPENDIX 14-G

LANDFILL GAS MIGRATION CONTROL SYSTEM (GMCS) ALONG WESTERN PERIMETER

(Added April 3, 2009)



LEGEND

- PROPERTY\PERMIT BOUNDARY
- CELL BOUNDARY
- SECTOR BOUNDARY
- LEACHATE COLLECTION PIPE
- CELL FLOOR
- EXISTING PERIMETER FENCE
- STORMWATER DRAINAGE DITCH AND FLOW DIRECTION
- GMP-9 — EXISTING GAS MONITORING PROBE (GMP)
- (A) — SECTOR DENOMINATION AND FILL DIRECTION
- 1% — DIRECTION AND GRADE OF LEACHATE COLLECTION PIPE
- LEACHATE SUMP AND EXTRACTION PIPE
- PV-2 — PASSIVE VENTING (PV) WELL
- ROW — RIGHT-OF-WAY

SITE PLAN

250 125 0 250 500

SCALE IN FEET

NOTES

1. DIGITIZED TOPOGRAPHY FROM SURVEY DATED FEBRUARY 4, 2007 BY GEODETIX. DATUM NAVD88.
2. CONTOUR INTERVAL IS 2 FEET.
3. SITE TOPOGRAPHY MAY VARY DUE TO OWNER OPERATIONS.
4. GMP 20 TO 22 ARE TEMPORARY GAS MONITORING PROBES.

STATE OF TEXAS
CHARLES W. LEUNG
85301
LICENSED
PROFESSIONAL ENGINEER
April 3, 2008

FOR PERMITTING ONLY

DESIGNED	JM/CL
CHECKED	CL
APPROVED	CL
DRAWN	SS

REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION
1	11-08	CL	CL	ADDED NOTE 4.
1	11-08	CL	CL	ADDED BACK PV-#1A AND PV-#2A, PREVIOUSLY OMITTED.

THE CITY OF EL PASO, TEXAS

R.W. Beck, Inc.
4975 Preston Park Blvd., SUITE 850
Plano, TX 75093
(972) 372-1200

CITY OF EL PASO, TEXAS
McCOMBS LANDFILL ACTIVE LFG MIGRATION CONTROL SYSTEM (WESTERN PERIMETER)

SITE PLAN

PROJECT NUMBER: 15-002180-01000

SHT. OF:

DRAWING NUMBER: FIGURE 14G-1

NOTES

1. DIGITIZED TOPOGRAPHY FROM SURVEY DATED FEBRUARY 4th, 2007 BY GEODETIX.
2. CONTOUR INTERVAL IS 2 FEET.
3. SITE TOPOGRAPHY MAY VARY DUE TO OWNER OPERATIONS.
4. PROPOSED LOCATION OF BLOWER FLARE STATION MAY CHANGE DUE TO FIELD CONDITIONS.

CELL BOUNDARY

GRADING MODIFICATION

APPROXIMATE LIMIT OF GMCS CONSTRUCTION

PASSIVE VENT-RETROFIT–DETAIL (TYP.)

LFG HEADER PIPE ANCHOR (TYP.)

APPROX LOCATION OF PROPOSED BLOWER FLARE STATION

CONDENSATE STORAGE TANK

PV-1 PV-2 PV-3 PV-4 PV-5 PV-6 PV-7

4" SDR 17 HDPE ABOVE-GRADE LATERAL PIPING (TYP.)

8" SDR 17 HDPE HEADER PIPING (ABOVE-GRADE)

1/D-1 EXISTING PASSIVE VENT DETAIL (TYP.)

4/D-2 HEADER TERMINATION DETAIL

DUAL-CONTAINED CONDENSATE SUMP

GMP-19 GMP-3 GMP-20 GMP-22 GMP-21 GMP-2 GMP-18

McCOMBS ROAD (60' ROW)

FUTURE LFG EXTRACTION WELLS (IF NEEDED) (TYP.)

PROPERTY/PERMIT BOUNDARY

SECTION 1, BLOCK 81, TOWNSHIP 1

TEXAS & PACIFIC RAILROAD SURVEYS

LAYOUT OF ACTIVE LFG MIGRATION CONTROL SYSTEM

50 25 0 50 100

SCALE IN FEET

STATE OF TEXAS
CHARLES W. LEUNG
85301
LICENSED PROFESSIONAL ENGINEER

April 3, 2009

FOR PERMITTING ONLY

dnupcharoen Aug 26, 2008 - 10:12am - R:\Seattle\McCombs\LFG\McCombs LFG Migration CAD-DoNotUSE\Permit\FIGURE14G-2.dwg

DESIGNED	JM/CL
CHECKED	CL
APPROVED	CL
DRAWN	SS

REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION
1	7-08	CL	CL	-

THE CITY OF EL PASO TEXAS

R.W. Beck, Inc.
1300 East Lookout Drive, Suite 145
Richardson, TX 75082
(972) 994-0300

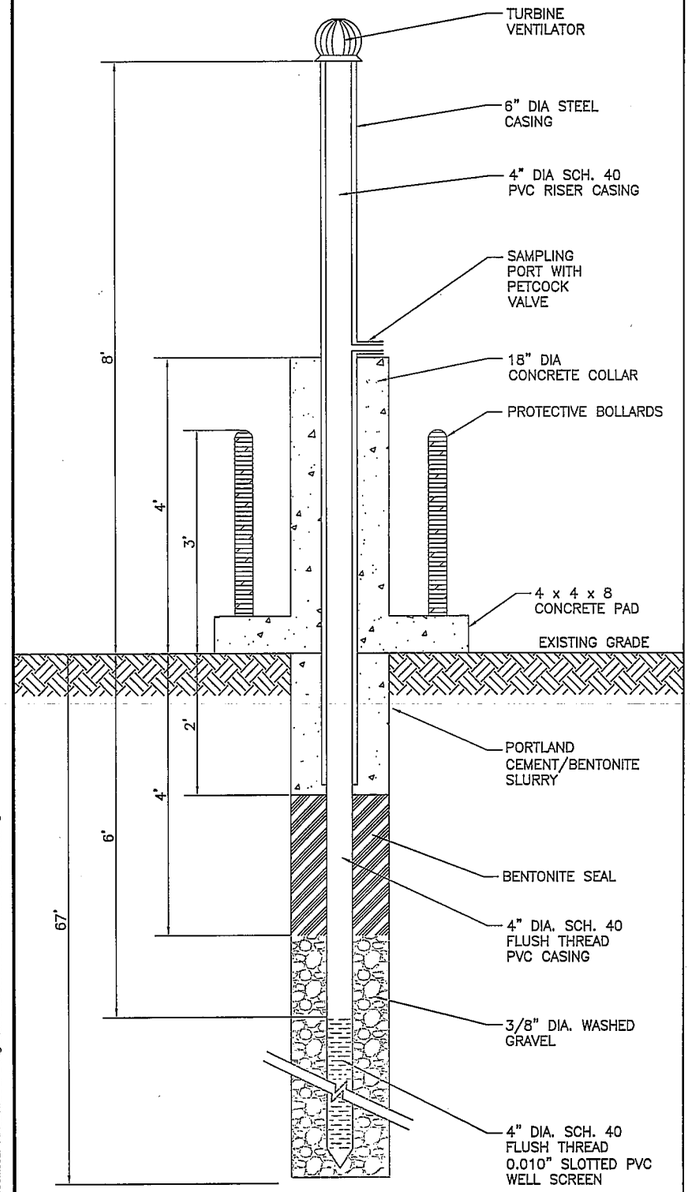
CITY OF EL PASO, TEXAS
McCOMBS LANDFILL ACTIVE LFG MIGRATION CONTROL SYSTEM (WESTERN PERIMETER)

LAYOUT OF ACTIVE LFG
MIGRATION CONTROL SYSTEM (GMCS)

PROJECT NUMBER: 15-002180-01000

SHT. OF:

DRAWING NUMBER: Figure 14G-2

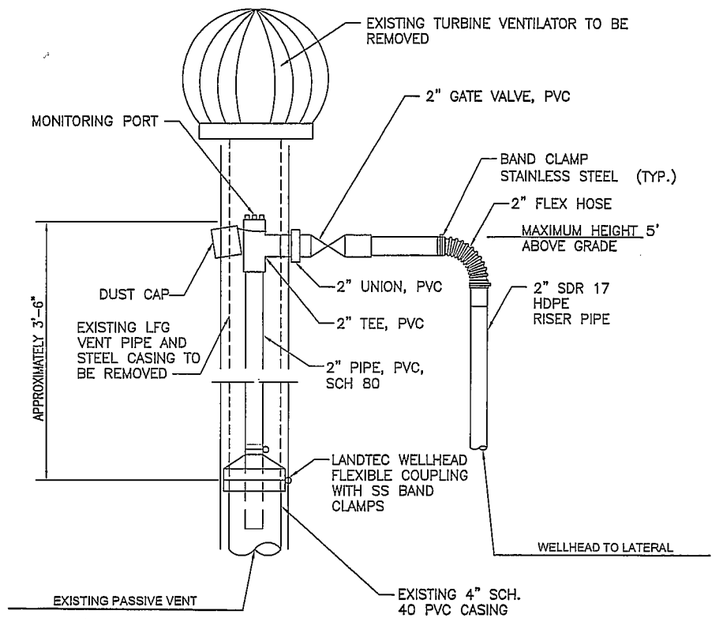


EXISTING PASSIVE VENT DETAIL

NOTES:

1. EXISTING DETAIL REPRODUCED WITHOUT MODIFICATION FROM CITY OF EL PASO DOCUMENTATION.

NTS

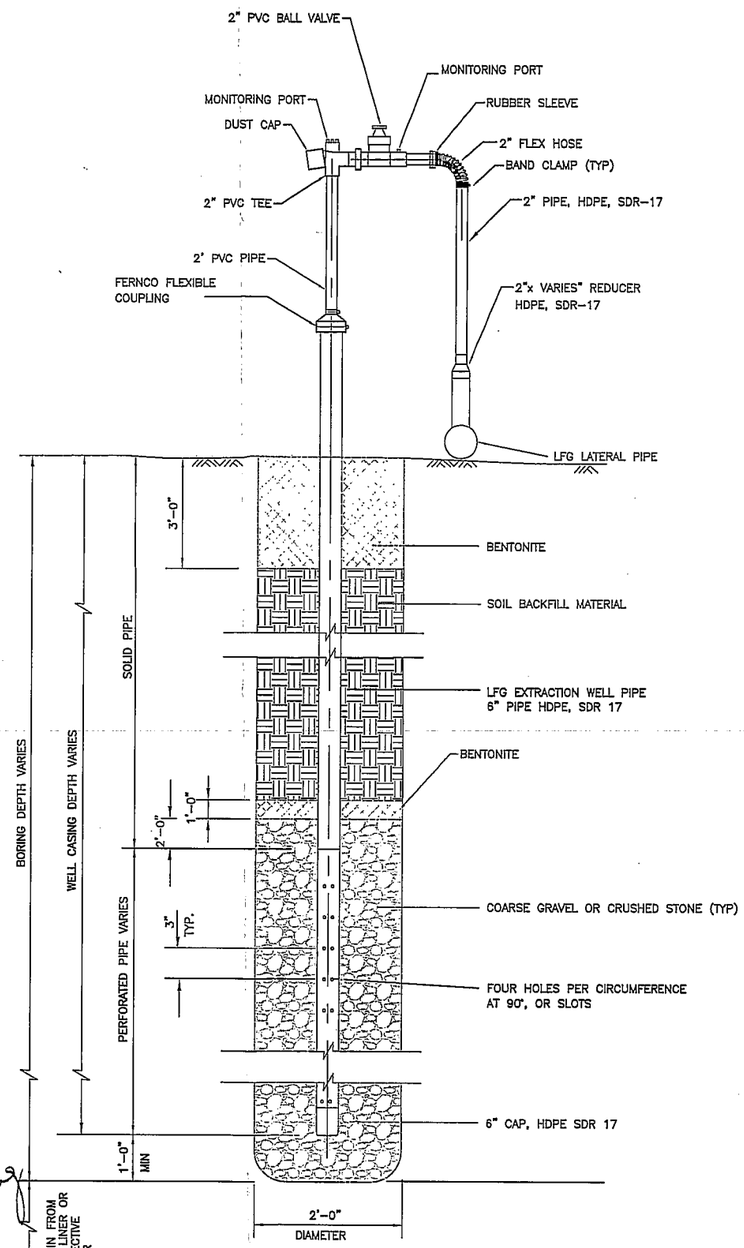


NOTES:

1. WELLHEAD ILLUSTRATED IS 2" LANDTEC ACCU-FLO WELLHEAD OR EQUIVALENT.
2. ALL PIPE SIZES AND DIMENSIONS ARE APPROXIMATE.
3. REMOVED MATERIAL AND EQUIPMENT TO BE RETURNED TO OWNER IN EXISTING CONDITION.

PASSIVE VENT-RETROFIT DETAIL
TYPICAL
NTS

STATE OF TEXAS
CHARLES W. LEUNG
85301
LICENSED
PROFESSIONAL ENGINEER
April 3, 2009



TYPICAL FUTURE LFG EXTRACTION WELL DETAIL (IF NEEDED)
NTS

FOR PERMITTING ONLY

DESIGNED	JM/CL
CHECKED	CL
APPROVED	CL
DRAWN	SS

REV	DATE	CHK'D	APP'D	REVISION DESCRIPTION
1	7-08	CL	CL	-

THE CITY OF EL PASO TEXAS

R.W. Beck, Inc.
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CITY OF EL PASO, TEXAS
McCOMBS LANDFILL ACTIVE LFG MIGRATION CONTROL SYSTEM (WESTERN PERIMETER)

TYPICAL GMCS DETAILS

PROJECT NUMBER: 15-002180-01000
SHT. OF: -
DRAWING NUMBER: Figure 14G-3

PART III SITE DEVELOPMENT PLAN
ATTACHMENT 14 – Landfill Gas Management Plan

REVISED/REPLACEMENT PAGES
(Redline/Strikeout Format)

(CONTINUED)

SITE DEVELOPMENT PLAN
PART III – ATTACHMENT 14
LANDFILL GAS MANAGEMENT PLAN

McCombs Landfill
El Paso County, Texas
TCEQ MSW Permit No. 729A

Approved December 14, 2001

Revision 1 Approved November 13, 2003

Revision 2 April 3, 2009

Prepared for:

City of El Paso – Environmental Services

7969 San Paulo Drive

El Paso, Texas 79907

Prepared by:

R. W. Beck

4975 Preston Park Blvd., Suite 850

Plano, Texas 75093

Project No. 15-00297-01000

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7 BASIS OF PROBE AND VENT PLACEMENT

In June 2000, two passive venting wells (PV-1 and PV-2) were installed in order to intercept and vent methane gas prior to reaching GMP-2 and GMP-3. One (1) venting well was installed approximately fifty (50) feet east of GMP-2, with the other venting well installed approximately fifty (50) feet south and thirty (30) feet east of GMP-3. Both venting wells were installed to a depth approximately sixty (60) feet bgs in order to capture methane gas at depths where the majority of the elevated methane gas levels were detected and may be generated.

In 2001, one vertical passive venting well (PV-3) was installed to a depth of 55-feet below grade. The venting well was located approximately 10 feet south of GMP-4. Construction details for the Passive Venting Wells are included in Appendix D-1. The locations of the passive venting wells are shown in Appendix A-2.

Five (5) additional passive venting wells (PV-3 to PV-7) were installed in 2006 to provide additional gas venting in the area between GMP 2 and GMP 3. PV-3 was a replacement vent of the one installed in 2001. GMP 18 and GMP 19 were installed in 2004 to eventually replace GMP 2, and GMP 3, respectively. GMP 2 and GMP 3 will be decommissioned, plugged and abandoned after their gas readings have returned to compliance due to the installation and operation of the proposed active Gas Migration Control System (GMCS) along a portion of the western perimeter as part of the gas migration remediation plan. The current locations of GMPs 2 and 3 are too close to the waste limits, and the locations of GMPs 18 and 19 are more suitable for gas monitoring at these two locations.

Temporary GMPs 20, 21 and 22 were installed in 2006 to provide additional information on gas migration. These probes will also be decommissioned, plugged and abandoned after the gas readings of the impacted probes in the affected area have returned to compliance. The City has also decommissioned, plugged and abandoned GMPs 4, 5 and 6 based on previous TCEQ approval.

The locations of the GMPs and passive venting wells are shown in Figure 14G-1, and the approximately coordinates and elevations are shown in Appendix A-3.

The permanent Site Methane Monitoring Network consists of fourteen (14) GMPs spaced approximately 1,000 feet apart. The GMPs were installed along the permitted area and property boundary. A review of on-site geological/soil data revealed little evidence of any laterally extensive stratographic units which could significantly influence migration of any gases produced within the landfill cells (AGRA, 1994). The locations of the GMPs are shown in Appendix A-2. Except for GMP-7 (10 feet deep), the GMPs depths are 55 feet. The depth of each GMP was based on the following information:

Closed Cell Area:

According to information provided by the City, the southeastern quadrant of the landfill was used for disposal of municipal solid waste in the early 1960's. Information available suggests that little excavating was performed; waste was placed on the surface of the ground and covered (Borrego, 1994). AGRA Earth and Environmental Group estimated that the depth of waste in this area extends less than 5 feet below the surrounding land surface. The top of this cell is approximately 15 feet above grade (AGRA, 1994). The cell is covered with silty sand.

Phase II Area:

Excavations southwest of the potential area extended to a depth of 65 feet below the surface (Borrego, 2000).

8 GAS MONITORING PROBE INSTALLATION (Continued)

Gas Monitoring Probes 18 to 22 (AMEC, 2004 - 2006)

The gas monitoring probes were installed by a licensed monitor well driller (Mr. John McDuffee License No. 2994W) employing a CME 75 truck mounted drill rig equipped with 10-inch O.D. hollow stem augers. All drilling and probe operations were performed under the direction of an AMEC Texas-registered professional geologist. During the placement of the probes, the soil encountered was continuously examined, visually classified and logged. The boring and well logs of the GMPs 18 to 22 are presented in Appendix F. Locations of GMPs 18 to 22 are shown in Appendix G.

GMP 18 and GMP 19 were installed in 2004 to eventually replace GMP 2, and GMP 3A, respectively. GMP 2 and GMP 3A will be decommissioned, plugged and abandoned after their gas readings have returned to compliance due to the installation and operation of the proposed active Gas Migration Control System (GMCS) along a portion of the western perimeter as part of the gas migration remediation plan. The current locations of GMPs 2 and 3A are too close to the waste limits, and the locations of GMPs 18 and 19 are more suitable for gas monitoring at these two locations. The original GMP 3 was damaged and was replaced by GMP 3A in 2003.

Temporary GMPs 20, 21 and 22 were installed in 2006 to provide additional information on gas migration. These probes will also be decommissioned, plugged and abandoned after the gas readings of the impacted probes in the affected area have returned to compliance. The City has also decommissioned, plugged and abandoned GMPs 4, 5 and 6 based on previous TCEQ approval.

18 GAS MIGRATION CONTROL SYSTEM ALONG WESTERN PERIMETER

Existing gas monitoring probes (GMPs) 2, 3, 20, and 21 along the western perimeter of the McCombs Landfill have been experiencing periodic elevated methane readings above the regulatory limit of 5 percent (%) for some time. Certain investigations and field work had been performed by consulting firms in the past on LFG migration at the landfill, and the landfill is currently under enforcement actions by TCEQ to mitigate the affected GMPs due to elevated methane readings.

Additional passive vents (PV-3 to PV-7) were installed along the western waste limit of the Landfill in 2006 by AMEC (a local consulting firm) as part of the on-going remediation efforts. The boring and well completion logs and state well reports are provided in Appendix F. The locations of PV-3 to PV-7 are presented in Figure 14G-1. However, the passive vents were not effective in controlling gas migration toward the affected GMPs. As a result, the City decided to install an active gas migration control system (GMCS) as part of the site gas remediation plan.

The proposed GMCS is an active extraction system to control LFG migration in the affected area. The system is a partial active system because it will be installed only along a distance of approximately 1,000 to 1,500 feet over the western portion of McCombs Landfill (Phases I – III) to remediate LFG migration in the affected area. Existing passive vents PV-2 to PV-7 will be converted into active gas extraction wells as part of the GMCS. In addition to the 6 converted extraction wells, the GMCS will consist of LFG header and lateral pipes, a condensate sump and pump system, a blower/flare (b/f) station, a condensate storage tank and an air compressor system to power the condensate pump system. Future new gas extraction wells may be installed if the gas readings of the affected GMPs are not under the compliance level after 6 months of operating the GMCS with the converted passive vents. See Figures 14G-1 and 14G-2 for the approximate location and layout of the proposed GMCS. Typical details of the passive vents conversion and potential new gas extraction wells are presented in Figure 14G-3.

The Landfill site is currently under the annual air emissions threshold of the Federal New Source Performance Standards (NSPS). As a result, there is no present requirement for the City to install a LFG collection and control system (GCCS) covering the entire landfill under the NSPS rules, unless there are changes in the anticipated waste acceptance rates and/or site specific non-methane organic compounds (NMOC) concentrations in the future that may increase air emissions.

APPENDIX A-3

HORIZONTAL LOCATIONS AND ELEVATIONS TABLE FOR GAS MONITORING PROBES AND PASSIVE VENTING WELLS

Reference Point	North	South	Elevation
GMP-1	10675.08	10110.84	4086.41
GMP-2	11883.99	10084.55	4088.11
GMP-3A (replaced original GMP-3)	12885.06	10080.40	4096.68
GMP-4 (decommissioned)			
GMP-5 (decommissioned)			
GMP-6 (decommissioned)			
GMP-7	11051.54	12140.06	4072.61
GMP-8	10665.08	11084.89	4072.38
GMP-9	10680.16	13140.49	4078.55
GMP-10	11681.36	13252.38	4084.32
GMP-11	12680.13	13235.89	4087.33
GMP-12	13679.19	13217.35	4082.85
GMP-13	14680.49	13199.921	4082.21
GMP-14	14964.03	12243.49	4075.69
GMP-15	14961.44	12244.89	4067.69
GMP-16	14953.59	10166.20	4048.13
GMP-17	13973.30	10070.10	4056.37
*GMP-18***	*10738875.87*	*413522.86*	
*GMP-19***	*10739860.13*	*413550.26*	
*GMP-20***	*10739538.43*	*413615.12*	
*GMP-21***	*10739225.81*	*413595.36*	
*GMP-22***	*10739398.67*	*413545.64*	
PV-1	11870.84	10134.05	4092.70
PV-2	12803.58	10116.34	4101.28
PV-3	12835.90	10960.34	4081.81

RR Spike (Benchmark)*	10000.00	10000.00	4080.16
FND CM @ Back Bldg. (Benchmark)	10609.25	11047.33	4072.11
PV-4**	10739557.07	413732.35	
PV-5**	10739372.37	413721.45	
PV-6**	10739168.26	413775.74	
PV-7**	10739168.26	413775.74	

** Approximately locations only, coordinates and elevations not surveyed.

* The RR Spike Benchmark was designated as the reference point for the survey. This benchmark is located at the common corner of Section 1 and Section 12, Block 81, Township 1, and Sections 6 and 7, Block 80 Township 1, Texas and Pacific Railway Surveys.

PART III SITE DEVELOPMENT PLAN
ATTACHMENT 14 – LGMP

APPENDIX 14-F

ADDITIONAL GAS MONITORING PROBES (GMPs 18 TO 22) AND PASSIVE VENTS BORING LOGS AND WELL REPORTS

(Added April 3, 2009)

PART III SITE DEVELOPMENT PLAN
ATTACHMENT 14 – LGMP

APPENDIX 14-G

LANDFILL GAS MIGRATION CONTROL SYSTEM (GMCS) ALONG WESTERN PERIMETER

(Added April 3, 2009)